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News Print Crisis Foreshadows Common Action

Other Manufacturers Compelled to Meet Lower Contract Price Announced by International Paper Co.—Reduction by $5 Per Ton Considered Purely Defensive by Informed Canadian Observers—R. A. McInnis, Managing Director of Anglo-Canadian Believes Few Companies Can Successfully Continue Operations At Existing Prices

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 24, 1933—So many crises have come in the news print industry, each of which has appeared to make an immediate agreement between the rival operators inevitable for control of production and stabilization of the market that a responsible writer hesitates to put the latest development in that class. Yet it must be recorded that the action of the International Paper Company in lowering the contract price for news print by $5 per ton is regarded by many here as foreshadowing, indeed compelling, common action towards that desirable consummation.

While there is a good deal of loose talk about "wielding the big stick," informed observers are not inclined to regard the International Paper Company's action as other than purely defensive in intent. One of the most regrettable features of the news print industry for years has been the under-cutting of the contract price by concerns fighting tooth and nail to get a place in an over-crowded market. With each successive lowering of the price it was thought that economic considerations alone would prevent any further drop, yet it is said that in recent months cut-throat competition in prices has been more violent than ever. While the official price has been $45 per ton in the New York zone it is said that several companies have been selling at $40 a ton and one Canadian company is said to have made a contract at $38 per ton.

It is to meet this kind of competition that the International Paper Company is said to have acted; indeed the company officially states that open price cuts and secret concessions by insolvent mills have forced its hand.

Of the $12,000,000 represented by the difference in the price between $45 and $40 per ton on the present annual consumption of news print in the United States, it is estimated that Canada will contribute some $5,000,000 during the last nine months of 1933—supposing there are no developments meanwhile.

But no one would be surprised at any moment to see the higher cost mills closed and the various companies get together for common action.

Statement by R. A. McInnis

R. A. McInnis, managing director of the Anglo-Canadian Pulp and Paper Mills, Ltd., in a statement on the subject said:

"It is, of course, unfortunate that another price cut of $5 per ton has been made at a time when the industry is already facing very serious difficulty, but Mr. Graustein's statement to his customers seems to me to clearly indicate why it was necessary to make this reduction. As Mr. Graustein has clearly pointed out prices have been quoted and business has been taken under the market price. Practically all of the publishers have been claiming for some time that substantially lower prices than the market price have been offered, but our company has never been able to get any definite information as to the source of the quotation. There is no question that this industry cannot stand another cut but the choice between that and losing existing business is a very difficult one for the Canadian news print manufacturers and is a decision that every news print company must make for itself."

When asked as to the effect of this reduction on the news print industry in Canada, Mr. McInnis stated that as very few companies could successfully continue at existing prices, it would seem that the end of the news print industry in Canada was rapidly approaching.

Premier L. A. Taschereau declined to comment on the price reduction.

St. Lawrence Corp., Limited, Reports

Marked reflection of the continued depression in the news print industry is found in the financial statements of the St. Lawrence Corporation, Ltd., and one of its operating constituents, Brompton Pulp and Paper and Lake St. John Power and Paper Company. A consolidated report is not issued this year, only the parent company's balance sheet appearing, together with a profit and loss account showing assessments against the constituent companies for administration costs.

St. Lawrence Paper Company, the largest subsidiary, reports an operating loss of $286,670, against a profit of $427,542 a year ago. After various charges and writeoffs, there is carried forward a deficit of $1,482,833. By the Brompton Company there is shown an operating loss of $670,930, against a 1931 profit of $174,321, and after all charges and deductions there is a deficit on the year of $1,-

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Activities of Fox River Valley Paper Mills

Kieckhefer Container Co.'s Plants Now Operating At 80 Per Cent of Capacity — Contract Awarded for Improvements and Alterations At Niagara Mill of Kimberly-Clark Corp.— Finishing and Machine Departments to be Remodeled Shortly

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 24, 1933—Production has increased 20 per cent over a year ago at the Kieckhefer Container Company, Milwaukee, Wis., according to J. W. Kieckhefer, president. The company's plants are now operating at 80 per cent of capacity, with 1,500 employees working considerably longer hours than a year ago. "The container business generally has picked up in the last two months," Mr. Kieckhefer said. "We find the general picture of business much better."

Kimberly-Clark Improvements Resumed

Partial resumption of its improvement program has been undertaken by the Kimberly-Clark Corporation, Neenah, Wis. A contract has been awarded to Fluor Bro. & Smith, Oshkosh, Wis., for improvements and alterations at the branch mill at Niagara, Wis. Alterations will be made in the finishing and machine departments, and the roof over part of the building will be raised. A new overhead trolley conveying system is to be installed.

Allis-Chalmers Losses Reduced

Losses of the Allis-Chalmers Manufacturing Company, Milwaukee, Wis., builders of turbines and other paper mill equipment, were reduced for the first quarter of 1933 as compared to the same period a year ago, according to the company's financial statement. The loss for the first three months of 1933 was $869,986, after all charges including interest on debentures, taxes and depreciation. This compares with $936,395 in the first quarter of 1932.

Billings for the quarter were $2,691,992, as compared with $3,593,966 in 1932, and bookings were, respectively, $1,720,565 and $2,984,377. The company's unfilled orders of March 31 were $4,470,399, as compared with $5,441,825 a year ago.

Lower Rates for Coal Shipments Asked

The Wisconsin Public Service Commission has under consideration the proposal of the Chicago & Northwestern, Milwaukee Road, Soo Line and Green Bay & Western to provide lower rates to the Fox River Valley on coal shipments. A hearing was held last week before Commissioner A. R. McDonald, at which the representatives of the roads asked permission to reduce the rate to 70 cents a ton for shipments to Appleton, Wis., and 75 cents a ton to Neenah and Menasha, Wis., from the docks at Green Bay and Manitowoc, Wis. The roads point to the fact that barge companies are unregulated and may charge whatever rates they please. They are unable to compete under the present scale and believe the rates they are requesting would save some of the business for the railroads.

Taxation Threat Removed

A threat of greatly increased local taxes for paper mills of the Fox River Valley was removed by action of the Fox River Valley Municipalities League, made up of public officials of valley cities, when they voted to defer installation of a metropolitan sewer system for the time being. The plan was to build sewage disposal plants at several points along the river to serve the entire group of cities, in order to stop pollution of the Fox river.

Mill owners in the area involved were interviewed by the officials. The survey revealed that they regarded the project as one of considerable value, but that times were too uncertain to proceed now. Charles Seaborne, chief engineer of the Thilmany Pulp and Paper Company, Kaukauna, Wis., appeared before the league to voice the sentiments of the mill owners. He declared that it is costing his company four dollars more a ton to manufacture pulp than it can be bought for in Sweden, and that a tax levy for the sewer project now would mean an increase of the loss to six dollars a ton. He said it would be fine to restore fishing along the Fox River, but suggested that the welfare of the industries was more important just now. An expenditure of more than $700,000 would be required for the metropolitan system.

Federal Forestry Work

Reforestation of 500,000 acres of cutover lands in Marinette County is proposed in a resolution adopted by the county board, urging Governor A. G. Schmedeman to arrange for the federal forestry work in Wisconsin to be done under supervision of the Wisconsin Conservation Commission. The board reports that 93,140 acres already have been designated as county forests, and that plans already have been prepared for the building of fire roads and lanes, the thinning of overstocked stands and the planting of trees. It is pointed out that 900 men could be employed for six months on this work. This area is in proximity to a large paper manufacturing territory, and the work is urged by R. B. Goodman, a member of the county board and a capitalist interested in several mills. A large supply of pulp wood would be made available if the plans were carried out, it is beieved.

Sheet and Fibre Properties in Paper Discussed

Randall Doughty, assistant engineer of the U. S. Forest Products Laboratory, Madison, Wis., spoke on "The Relation of Sheet Properties and Fibre Properties in Paper," at the monthly meeting of the Northeast Wisconsin Section of the American Chemical Society last week. The meeting was held at the Institute of Paper Chemistry, Appleton, Wis. About 50 members were present.

Adequate Water Supply Assured

A much more adequate water supply is evident for the summer season on the Fox, Wisconsin and Flambeau Rivers, due to the precipitation of the winter and spring. Reservoirs in the upper regions are beginning to fill up as the spring thaws progress, and some of them are expected to be full for the first time in two years. The thaws have not been as rapid as in other seasons, and the flowage facilities therefore have not been taxed. Flood conditions have not been experienced, thereby making it unnecessary to release an undue amount of water to prevent riparian damage.

Finnish Pulp Capacity Expanded

[FROM CUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 26, 1933—The producing capacity of the Finnish pulp and paper industry is much larger than indicated in 1932, the groundwood mills alone being in a position to turn out 685,000 metric tons and the sulphite mills 812,000 metric tons according to reports received by the Department of Commerce.

News Print Situation Involved In Ontario

Entire Industry Affected by International's Action In Cutting Contract Quotations by $5 Per Ton—Abitibi Officials Declare Number of Canadian and United States Mills Have Been Cutting Prices Openly—Shifting of Tonnages Looked For

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, April 25, 1933—The announcement of a discount of $5 per ton on all news print contracts, made by A. R. Graustein of the International Paper Company, in New York, created a deep interest in the news print circles in Ontario. The entire industry in Canada is likely to be affected by International's cut in price. The contracts of that company stipulated a price of $45 at ports and $46 inland and these prices were more or less standard throughout the industry. At the same time, however, a number of Canadian and United States mills, according to Abitibi officials, have been cutting prices openly to the general knowledge of the industry. The discount now offered by International is regarded as having established a new price, and all producing interests in the central and eastern areas of the continent will be affected.

According to W. H. Smith, assistant managing director of the Abitibi Power and Paper Company, head office Toronto, "other news print producers will be obliged to fall in line with the new price condition. Mr. Graustein's reference to open cuts and secret concessions does not apply to Abitibi, but apparently there will be a general reduction in prices now." From other sources close to Abitibi it was learned that this company has shaded prices only in certain areas. That is, they have made concessions in some cities to hold contracts already in force and where competing concerns have been selling or offering news print at lower prices.

In a good many instances, the PAPER TRADE JOURNAL was informed by an eminent authority on news print marketing, "prices materially below $45 and $46 have been offered by producers. This has not been confined to Canadian producers. It has also been the case with a number of the United States producers. In many cases these cuts have been made openly; in other instances they were made in the form of secret concessions. But there was some semblance, in spite of these cuts, of adherence to the basic price. With International now out in the open, the old price may be regarded as having disappeared. Everybody will be obliged to meet Mr. Graustein's so called discount."

The effect of such a sharp cut on earnings cannot be estimated at the present time. In addition to change in prices, there may be also some shifting of tonnages from one mill or group of mills to other mills or groups before the situation settles down. At the moment, however, it is not considered likely that the cuts now made necessary will go beyond meeting International's price.

Canadian news print companies which are in receivership, such as Abitibi, will have their arrangements badly disrupted by the new price schedule, it was intimated. "It will be embarrassing," the administrator of one such company admitted, "but there it is, and there's nothing we can do about it." One likelihood, following the action of International, is that a number of the weaker companies, now operating under receiverships or reporting deficits, will be forced entirely out of business. But authorities intimate with the industry declared that it was too early as yet to predict in what direction the worst effects of lower prices would be found.

Notes and Jottings of the Trade

The Porcupine Pulp and Lumber Company, Timmins, Ont., having parted with all its property, divided its assets rateably among its shareholders, and paid its debts and liabilities, is surrendering its charter.

E. W. Connors, for the past nine years manager of the woods department of Halifax Pulp and Power Company, Sheet Harbour, N. S., was tendered a farewell reception recently on the eve of his departure for Old Town, Maine. Mr. and Mrs. Connors were the recipients of a number of gifts from various organizations.

The pulp market continues very quiet throughout Ontario and of late weeks shipments have fallen off materially. A number of pulp mills in Ontario and other provinces are operating only six to ten days a month. The prevailing price for peeled spruce and balsam, south of North Bay, are $5 to $6 per cord, f.o.b. cars, and north of North Bay, $4 to $5 a cord. Poplar is moving very slowly, from $2 per cord up, and there is a surplus on the market.

Reconsidering its decision to hold the annual convention in Kingston on June 26 and 27, the Canadian Paper Box Manufacturers' Association have changed the place of meeting to the Bigwin Inn in the Muskoka region. The original dates decided upon stand.

Forestry headquarters of the Abitibi Power and Paper Company will be removed from Toronto to Sault Ste. Marie, and will be in charge of B. F. Avery, chief forester of the company. When the Abitibi company absorbed the Spanish River Company, Mr. Avery and his staff came to Toronto but he will now direct forestry operations of the Abitibi group from the Soo.

Because of the drastic retrenchment that has been applied to the Ontario Forestry Branch along with other departments of Government service, activities of the various provincial forestry stations have, for the time being, been curtailed, and in future no free forestry stock will be delivered. Those desiring stock must come to the Branch for it.

Members of the Kiwanis Club of Pembroke, Ont., listened with deep interest to an address by one of its members, E. L. Ward, district forester, who spoke on forest fire-fighting.

The Beaver Wood Fibre Company, Ltd., Thorold, Ont., have sent out notices to the trade announcing that their contract with the G. T. Shipman Company, who handled their board sales, was terminated on March 1 by mutual agreement. The company is now handling all sales direct through the factory, having concluded with James Logie & Son, room 24 Foy Building, Front street, Toronto, to represent it as a direct factory representative. The Beaver Wood Fibre Company manufactures news print, ground wood pulp, pulp boards and box boards.

Increase Operations at Norfolk

NORFOLK, N. Y., April 24, 1933—An increase in operations was placed in effect this week at the local branch of the St. Regis Paper Company with the return to a schedule of five days a week. The plant has been running on part time for a number of weeks and the improvement is attributed to a better demand for products. A number of the other branches operated by the company in Northern New York have also increased working schedules in recent weeks and the improvement is expected to continue.

Demand for Paper Falls Off in Philadelphia

Trading In Various Standard Grades of Paper Listless, Following Easter Holidays—Firmness of Prices In Fine Paper Market Results In Marked Decline of Intense Competition—Slight Improvement Noticed In Request for Coarse Papers

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 24, 1933—Post-Easter week in the Philadelphia paper trade was one of the least active which both branches of the industry—the fine and the coarse—have enjoyed, or rather have suffered this year. Indeed there was hardly more activity after Easter Monday than there had been in the holiday-broken week preceding. But curiously enough because of the much better spirit existing in the trade and the general conviction that conditions are moving upward, the dullness seemed not to give concern to anyone, and to be only explainable as just one of those things that does occur.

There was noted, however, a very marked decline in the fierce competition to get orders irrespective of prices which, for so long a time, has been a real vicious element in trade experience. Because of the firmness of prices and the tendency in some lines to advance slightly, and particularly in fine papers, the cut-throat competition among the printer consumers is ending. Save for this, the fine paper market was without feature.

Coarse paper dealers report a slight improvement in buying, particularly on the part of the textile industry, one of the most important in the Philadelphia district, but at best this volume is not large and orders are still small and only for immediate requirements. Krafts are being steadily held at firm prices with an intimation that a slight advance is in the offing. Tissues are still exceedingly low and with no prospect of betterment. Packers of paper stock report not the slightest change from the preceding week. They are able to dispose of all that they gather if they are willing to take the prices which the buying representatives of what seems to be a cooperative organization among the mills, offer. Mixed and commons are so low in price that most of the packers are refusing to take the poorest of these, even if they can do it for the mere cost of hauling. Demand for book papers keeps the market cleaned up but virtually at a profitless price.

Paper and Bag Institute's Activities

While then the week was a very quiet one so far as business was concerned, it was quite active in an organization way. The Philadelphia Paper and Bag Institute met on Wednesday with an attendance of 90 per cent of its membership. Operation of its Credit Bureau was the main topic of discussion and there was unanimity of opinion that it had served a very useful purpose and was indeed invaluable to members and really the backbone of the association. As to market conditions, opinion was quite general that improvement was imminent, and members who have stocks of merchandise on hand were urged not to sacrifice it at former price levels in view of the fact that prices were strengthening and that it would pay to insist on present price levels. It was decided that their contemplated banquet would not be held at this time, but later on, if seasonable, they would have an outing at some country club nearby.

Paper and Cordage Association Meets

The Philadelphia Paper and Cordage Association met on Friday in the Adelphia Hotel and decided to hold an outdoor meeting at Baederwood Country Club early in June. At this meeting, trade conditions also were discussed and the overwhelming opinion of those present was that conditions are improving and that there will be price advances. One of the larger dealers announced that it was the policy of his firm to lay up just as much stock as its financial condition would permit, in the confidence that postponement of ordering meant payment of higher prices. The address of the day was made by Chester A. Asher, Sr., former president of the National Confectioners' Association. Arrangements for the outing are being made by Chairman Bartle, of the Entertainment Committee.

News of the Trade

The Hooper Paper and Twine Company, Inc., 105 Church street, of which George R. Hooper is president, celebrated its twelfth anniversary of business life with dinner and bridge in the Ivy Room of the Adelphia Hotel on Thursday evening, in the presence of eighteen members of the firm, including employees and their wives. The firm began business in April, 1921, in leased quarters at 145 South 4th street and with growth of business engaged larger quarters at 270 South American street, and five years ago, at its present address.

A call has been issued by President William A. Hentz, of the Paper Trade Association of Philadelphia, for a meeting on Wednesday of this week particularly to hear the results of the recent conference with mill representatives in New York City.

Jame Andrews, president of the Schuylkill Paper Company, is receiving congratulations on the close of his forty-seventh anniversary in the paper business. Mr. Andrews began business life in 1886 with the Nescochague Manufacturing company, then at 609 Chestnut street, advancing from stock room clerk to outside local salesman. Ten years ago he began his own business, and seven years ago went to the Schuylkill Paper Company, of which he is now the head. He has held the quoit championship of the Paper and Cordage Association for two years.

Lewis Gerber, credit manager of the Paramount Products Company and Enterprise Paper Company, and office secretary of the Philadelphia Paper and Bag Institute, has been awarded a medal as prize in a 21-mile marathon swim, recently held at the Elks Club. The medal was presented by Henry A. J. Newton, secretary of the B. P. O. E. Number 2, Philadelphia, at a banquet held on Thursday evening last.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON. D. C., April 26, 1933—The Government Printing Office has received the following bids for 850 sheets of green gummed paper: Walker Goulard & Plehn Company, Inc., at $13.60 less 2 per cent; Mathers-Lamm Paper Company, $11.65; and Virginia Paper Company, $13.00.

Now Industrial Paper Co.

LOWELL, Mass., April 24, 1933.—J. E. Langstaff & Co., general paper merchants, 50 Highland avenue, have changed their name and address to Industrial Paper Company, 95 Bridge street, Lowell, Mass.

Technical Association and Superintendents Meet

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry and the Pennsylvania-New Jersey Division of the American Pulp and Paper Mill Superintendents Association held a joint meeting at the Benjamin Franklin Hotel, Philadelphia, Pennsylvania, Saturday, April 22nd.

Kumler Discusses Sizing

R. W. Kumler of Bennett Inc. was the first speaker on the program and presented a review of recent developments in paper sizing. Among the developments mentioned was the Bewoid process which is in use in Europe, the development of wax sizes and sodium aluminate.

E. S. Bissell of the Bausch & Lomb Optical Company read a paper on the optical characteristics of paper. In this paper Mr. Bissell showed how many paper properties can be studied by optical means, for example, the penetration of ink, distribution of filler and penetration of coating may be observed by a microscopic study of their sections cut with a microtome, opacity may be measured directly with the new opacimeter developed by M. N. Davis of Kimberly-Clark Corporation and pulp color can be estimated in the newly developed Nickerson color comparator.

W. E. Brown of the American Wringer Company described the construction of rubber covered rolls.

G. A. Peterson of Rice, Barton & Fales described the new McDonnell fourdrinier, developed by Frank McDonnell of Tileston & Hollingsworth, Boston. It is recommended by the inventor that the shake roll be located in excess of 25 per cent of the distance from the slices to the first suction box. In principle it should be located so as to drive the wire its maximum shake at that point where the stock is wet enough to be formed and dry enough so that the violence of shaking will not destroy its distribution on the wire.

Following the luncheon halver T. Sorenson gave a talk on paper as viewed by the engraver. In this talk he pointed out that real cooperation between the paper maker and the printer is needed to obtain desired printing results. This applies particularly to the matching of samples to enable the printer to anticipate how the ink will run on a certain job. The need for technically trained men on the sales staffs of paper companies selling to the printing trade was emphasized. The new era in printing paper sales demands a new type of paper salesman—men who have a background of a number of years of manufacturing and laboratory experience.

C. R. Heddon of the Levey Ink Company indicated the troubles experienced by the ink maker with paper. Paper troubles seem to fall into two classes: (1) papers not adapted for the particular job and (2) non-uniformity of the paper itself. More problems are encountered with coated papers than with any other. These include picking, unevenness of surface, and drying of inks.

The next item on the program was the discussion of the coordination of technical and practical men. E. C. Gildenzopf of Schmidt & Ault Paper Company, spoke from the angle of the old school practical paper maker, and G. E. Landt of the Continental Diamond Fibre Company spoke from the modern point of view. Both speakers emphasized the great need for sympathetic cooperation between the operating men, the engineers and the chemists.

It is evident that the trend in the industry is toward complete technical control with the men in charge of mill operations, open-minded and acquainted with the scientific progress taking place. The old prejudice against technical control is nearly gone and measurements of all kinds have replaced the guessing of former years, which in many cases was remarkably accurate. The basis of the prejudice on the part of the practical man with years of experience was largely the relative youth and brief period of experience of the technical school graduates who were employed to introduce research and means of testing into the industry. With the passing of time there has been a better appreciation of scientific methods on the part of mill operators and today only a few fail to understand these advantages.

As has been the custom in the Division for several years, there was a Question-Box provided and members proposed a number of questions which were discussed. It is questionable if the suggestions made were particularly valuable since most of the questions should require time and study to be properly answered. A few of the questions are as follows:

What causes worming at the slices?

Does long fibred stock give less expansion and contraction in the finished sheet than short fibered? Why?

What is the most practical way of minimizing foam in vats?

How may the maximum rigidity in light weight chip for corrugating be obtained?

The evening banquet was a highly successful affair. The speaker of the evening was C. W. Boyce, Executive Secretary of the American Paper and Pulp Association, who discussed Governmental attitude toward industry and suggested ways in which the paper industry may expect to make satisfactory progress in the coming years. A. J. Churchill of Wilmington, Delaware, was the toastmaster and Zack Wells of Wilmington gave a humorous talk.

The meetings were presided over jointly by W. R. Maull, chairman of the Delaware Valley Section of TAPPI, and J. L. Mullin, chairman of the Pennsylvania-New Jersey Division of the Superintendents Association.

Those Who Attended

Those who registered were as follows: Ludwig Stark, Wilson Wire Works, Kearny, N. J.; J. L. Mullin, Wilmington, Del.; Mrs. J. L. Mullin; R. N. Watts, Cheney-Bigelow Wire Works, Springfield, Mass.; E. C. Gildenzopf, Schmidt & Ault Paper Company, York, Pa.; W. Weston, American Wringer Company, Syracuse, N. Y.; A. A. Nyitray, Eastwood-Nealley Corporation, Belleville, N. J.; M. Craig Maxwell, McDowell Paper Mills, Manayunk, Pa.; J. H. Dow, Castle & Overton Inc., New York; T. G. Batchelor, American Delthirna Company, New York; J. C. Morrell, J. O. Ross Engineering Corporation, New York; J. C. Dieffenderfer, Paper Makers Chemical Corporation, Easton, Pa.; J. H. Fritz, Dill & Collins Inc., Philadelphia; Wyatt Schoonmaker, Titanium Pigment Company, New York; A. A. Coffin, Titanium Pigment Company, New York; J. Loomis, Heller & Merz Corporation, New York; G. H. Detwiler, Heller & Merz Corporation, Philadelphia; W. I. Putney, Philadelphia Telt Company, Philadelphia; C. H. Rickards, Philadelphia Felt Company, Philadelphia; Alan Boyd, F. C. Huyck & Sons, Albany, N. Y.; J. B. Allen, Chromium Corporation of America, New York; A. W. Wickham, MacAndrews & Forbes Inc., Camden, N. J.; R. W. Shaffer, MacAndrews & Forbes Inc., Camden, N. J.; Miss R. M. Cobb, Lowe Paper Company, Ridgefield, N. J.; G. W. Bicking, Bureau of Standards, Washington, D. C.; A. E. Griffin, Jessup & Moore Paper Company, Wilmington, Del.; R. W. Richard-

son, Dupont, Wilmington, Del.; Mr. and Mrs. W. M. Shoemaker, Yorklyn, Del.; L. M. Booth, Booth Chemical Company, Elizabeth, N. J.; George Heidrich, Wallace & Tiernan Inc., Belleville, N. J.; H. P. Cannon, Container Corporation of America, Manayunk, Pa.; C. E. Kinney, Hercules Powder Company, Wilmington, Del.; C. J. Kern, Moore & White Company, Philadelphia; F. F. Schrier, Moore & White Company, Philadelphia; John Gleichmann, General Chemical Company, Philadelphia; H. C. Schwalbe, Dill & Collins Inc., Philadelphia; P. S. Sinclair, Sinclair Company, Holyoke, Mass.; G. L. Bidwell, Riegel Paper Corporation, Riegelsville, N. J.; Oscar Stamets, Riegel Paper Corporation; G. Lamont Bidwell, Riegel Paper Corporation; C. E. Peterson, Riegel Paper Corporation; W. E. Brown, American Wringer Company, Woonsocket, R. I.; E. S. Bissell, Bausch & Lomb Optical Company, Rochester, N. Y.; R. W. Kumler, Bennett Inc., Boston, Mass.; R. G. Macdonald, Secretary of TAPPI, New York; W. J. Merrill, Dupont Company, Wilmington, Del.; J. H. Young, Dupont Company; L. L. Larson, Dupont Company; H. M. Cyr, N. J. Zinc Company, Palmerton, Pa.; F. A. Steel, N. J. Zinc Company; F. C. Farnsworth, Farnsworth Company, Watertown, N. Y.; C. W. Rivise, Philadelphia; Harold Bing, Beloit Iron Works, Beloit, Wis.; Valdemar Jacobsen, National Aniline and Chemical Company, Philadelphia; F. J. McAndrews, McDowell Paper Mills, Manayunk, Pa.; J. C. Harper Jr., West Jersey Paper Manufacturing Company, Camden, N. J.; B. M. Thomas, Container Corporation of America, Philadelphia; J. W. Gregor, Jessup & Moore Paper Company, Elkton, Maryland; A. E. Wangle, U. S. Rubber Products Inc., Philadelphia; D. H. Bissell, Chromium Corporation of America, New York; S. M. Hesser, Hinde & Dauche Paper Company, Gloucester, N. J.; R. B. Stearns, Container Corporation of America, Manayunk; E. N. Wennberg, Continental Diamond Fibre Company, Bridgeport, Pa.; Harold Burrows, Manhattan Rubber Company, Passaic, N. J.; Mrs. Burrows; G. E. Peterson, Rice, Barton & Fales, Inc., Worcester, Mass.; W. R. Maull, S. D. Reynolds, Container Corporation of America, Manayunk; Joe Hodgins, Paper Mill, New York; W. C. Law, Ravenswood Paper Mill Company, L. I. City, New York; C. Kephart, York Haven Paper Company, York Haven, Pa.; H. C. Busser, York Haven Paper Company; Harold Holden, Paper Makers Chemical Corporation, Boston; John Roslund, Moore & White Company, Philadelphia; C. M. Baker, American Paper and Pulp Association, New York; C. M. Schermerhorn, W. E. Greene Corporation, New York; Charles Ellis, Downingtown Manufacturing Company, Downingtown, Mass.; Ward Smith, Mineralite Corporation, Bethlehem, Pa.; R. D. Kehoe, Sturtevant Mill Company, New York; L. G. Munig, Kieckhoefer Container Corporation, Delair, N. J.; R. H. Underdown, American Dye Wood Company, Philadelphia; J. Carl Schmidt, Dupont Company, Philadelphia; E. N. Glauner, Downington Manufacturing Company; Samuel Clayman, Clinton Corn Syrup Refining Company, Philadelphia; Harry Goldberg, S. M. Langston Company, Camden, N. J.; H. H. Hanson, W. C. Hamilton & Sons, Miquon, Pa.; J. E. Plumstead, Jessup & Moore Paper Company, Wilmington, Del.; J. A. Wolever, Jessup & Moore Paper Company; T. Rudolph, Jessup & Moore Paper Company; J. W. Raines, Lindsay Wire Works, Cleveland, Ohio; Mrs. J. W. Raines; Cobert Paugh, W. C. Hamilton & Sons, Miquon, Pa., M. P. Northam, National Vulcanized Fibre Company, Wilmington, Del.; Ivar Ekholm, National Aniline and Chemical Company, New York; G. Collins, Dill & Collins Inc., Philadelphia; J. Stepberger, Ravenswood Paper Mill, L. I. City, N. Y.; John Durkin, Wilson Wire Works, Kearny, N. J.; George Zeiss, Jr., Manhattan Rubber Company, Philadelphia; C. H. I. Johnson, Downingtown Manufacturing Company, Downingtown, Pa.; J. J. Farrell, Downingtown Manufacturing Company; H. F. Hoffman, General Dyestuffs Corporation, Philadelphia; Mrs. Hoffman; G. B. Martin, General Dyestuffs Corporation, Philadelphia; Charles McDowell, McDowell Paper Mills, Manayunk, Pa.; E. J. Albert, Thwing Instrument Company, Philadelphia; P. J. Mulder, University of Pensylvania, Philadelphia; Fred West, Cheney Bigelow Wire Works, Springfield, Mass.; Jacob Edge, Downingtown Manufacturing Company, Downingtown, Pa.

Sutherland Co. Favors Black Bill

KALAMAZOO, Mich., April 24, 1933.—Executives of Kalamazoo paper mills which would come under the proposed law who have seen the draft of the Black employment law calling for a five-hour day and 30-hours a week employment find the measure exceedingly complicated as applied to existing labor conditions here. As none of the executives know definitely the provisions of the law as it stands, after its various amendments on the rough road it has followed since it was loosed upon Congress before its recent tabling, there was no expression for publication as to its acceptability here. Among those interviewed there seemed to be general belief that it would be acceptable if it will help conditions and the plan can be worked out satisfactorily.

The Sutherland Paper Company is one of the concerns which favors the law, however, insofar as they believe it a proper start in the right direction out of the confusion of these past several months. L. W. Sutherland, president, told the correspondent of the PAPER TRADE JOURNAL here that he had authorized a telegram to be sent to President Roosevelt endorsing for the Sutherland company the provisions of the law as it passed the Senate. His approval was revealed in this copy of the telegram he sent to the White House, which was released to the PAPER TRADE JOURNAL:

"Honorable Franklin D. Roosevelt,

"We heartily endorse the Black bill which will increase our number of employes from 850 to 1,200 men.

"SUTHERLAND PAPER COMPANY,
L. W. Sutherland, *President.*"

As Mr. Sutherland expressed it, when the details of this plan are worked out it is believed it will do a great deal toward absorbing large numbers of experienced paper mill employes, who are, perforce, unemployed now; and will show the willingness of his company to cooperate in this plan to "go forward."

Japanese Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 24, 1933—The Japanese Paper Manufacturers' Association reports production by member mills during the month of January at 56,765 short tons and sales at 64,625 tons. Nearly half of the production, 23,157 tons, consisted of news print paper, other printing papers accounting for 10,642 tons, and wrapping paper for 7,301 tons. With the exception of news print paper, sales during the month of February of all these classes exceeded the month's output.

Not With Frost-White Paper Co.

The PAPER TRADE JOURNAL has been requested to print the following: "A. L. Nielsen, formerly of the Mohawk Valley Paper Company, Little Falls, N. Y., is not connected with the Frost-White Paper Company of Salisbury Mills, N. Y."

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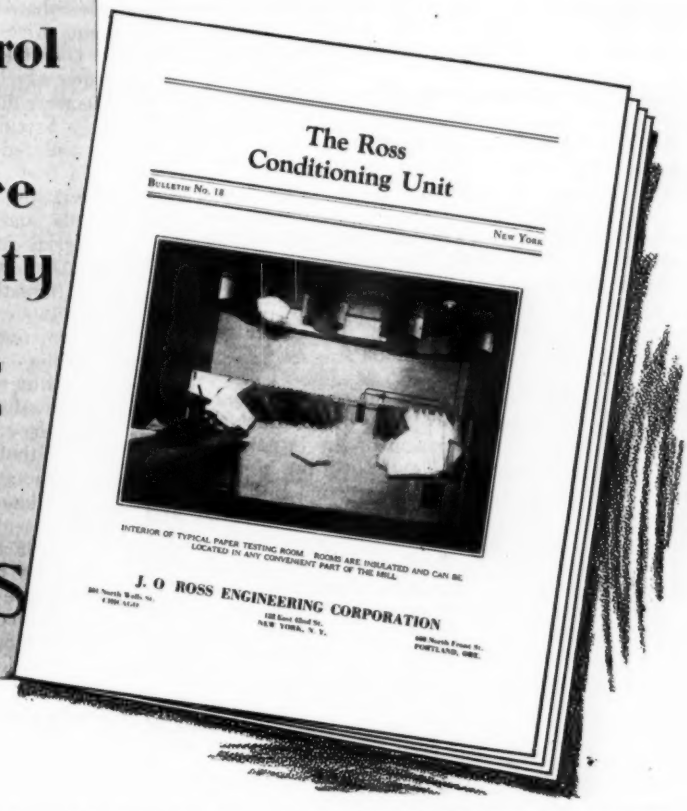
The Ross
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BULLETIN No. 18
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Illustrated with photographs and charts, explaining purpose of the system and describing the equipment. Write for copy.

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New York Trade Jottings

George W. Sisson, Jr., president of the Racquette River Paper Company, of Potsdam, N. Y., was a recent New York visitor.

* * *

George Burns, of Daniel M. Hicks, Inc., New York, has been appointed chairman of a membership drive committee to wage a campaign for new members for the New York Association of Dealers in Paper Mills Supplies, Inc.

* * *

General sales offices of the Eastern Manufacturing Company have been moved to 500 Fifth Avenue, New York, the new building at the north-west corner of Fifth Avenue and 42nd street. The new telephone is Chickering 4-4520.

* * *

John R. Diggs has moved his office to Room 2101, 369 Lexington Avenue, New York, at the corner of 41st street and Lexington Avenue. His new telephone number is Lexington 2-5459. The Paper Bag Manufacturers Association has moved to adjoining but separate offices. Their telephone number is Caledonia 5-5720.

* * *

Arthur Allen, color expert, was the guest speaker at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, held at the Hotel Roosevelt, New York, on Monday last. Mr. Allen gave an exceptionally interesting talk on recent developments in color, which was greatly enjoyed and appreciated by all present.

* * *

F. G. Becker and W. C. Flint have resigned as general manager and general sales manager of the Container Division of the Robert Gair Company, Inc., New York, according to an announcement made by the company. R. H. Bursch has been appointed general manager of the Container and Boxboard Divisions, with Lorin Miller, formerly manager of the Quincy Division, as assistant general manager. Felix F. Doll has been appointed general manager of the Folding Carton Division.

* * *

The Eastern Division of the National Paper Products Sales Company, with offices at 122 East 42nd street, New York, in announcing the return of Henry L. Samson to their organization, has sent the following announcement to the trade: "We are very glad to announce the fact that Henry L. Samson, well known throughout the industry, has again associated himself with the Eastern Division of our company in the capacity of Special Representative. Mr. Samson has had a broad experience of nearly a quarter of a century in the manufacture, sale and distribution of paper products. In fact, he pioneered the sale of Public Service Towels and No Waste Tissue. All of our business associates and good friends, as well as ourselves, feel that we are to be congratulated in having the benefit of Mr. Samson's sound counsel and advice, based on better than twenty-five years of service in this field."

Finland To Cut More Pulpwood

WASHINGTON, D. C., April 19, 1933—Finnish authorities estimate that 5,500,000 cubic meters, pile measure, of pulpwood will be cut this year compared with 2,500,000 last year according to Commercial Attache Watson at Helsingfors. This increase is partly due to the fact that there was a large hang-over stock last year. Exports are expected to absorb 1,000,000 cubic meters and the remainder will be used for the pulp mills in Finland.

Boston Paper Market Firmer

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 24, 1933—With the possibility of controlled inflation and a general advance in prices, values of paper have strengthened and the general tone of the market is optimistic. Wholesalers are more confident. It is felt that there will be a good volume of business in May and that the summer months will be more productive of sales than usual. On account of the currency situation, some prices have been withdrawn. Due to the possibility of controlled inflation, many inquiries were received and some which were pending developed into actual orders. Business during the week averaged at least fair, with possibly a trifle more than the previous week, some having been placed in anticipation of a rise in prices.

In fine papers, purchases were made in preparation of advertising campaigns and many inquiries were received. Bonds and ledgers were bought in moderate amounts. Material for use in bottle labels was in demand. Some manufacturers of glazed and coated papers withdrew prices in anticipation of additional cost of raw materials. Wrapping paper moved fairly well. Paper specialties were also fairly active.

Dealers in box board feel that prices are bound to advance due to an impending rise in raw materials. An average amount of board was sold during the week.

Prices of paper stock generally have an upward tendency, although few quotations have actually been changed yet. Quotations in many cases have been withdrawn. Some dealers have received telegrams from customers who wish to cover before advances take place. No. 1 kraft is firm at .80 @ .85 and No. 1 mixed papers at .20 @ .22½. There is a ready market for roofing rags, but prices in this commodity are as yet unchanged, so that there is no inducement for collectors to seek them.

A fair volume of twine moved, but some prices have been withdrawn.

Brotherhood Supports 30-Hour Week

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., April 24, 1933.—A meeting of the Hudson River branch of Pulp, Sulphite and Paper Mill Workers was held last week at which addresses were given by John P. Burke and Henry Greenwood, officials of the organization. Mr. Burke, who is president of the international organization, discussed the general economic situation in this country and Canada. It was asserted by Mr. Greenwood, who acted as a delegate to the recent convention in Montreal, that pulp sulphite workers are supporting the American Federation of Labor in the plan of a working week of thirty hours and that they are insisting that paper imported from foreign countries be manufactured on a thirty-hour-weekly basis. He also reported that the organization has called the attention of Congress to the fact that news print paper is imported duty free and emphasized that manufacturers in this country are obliged to meet stern competition from Canada and Scandinavian countries.

Finland's Pulp Industry Grows

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 26, 1933—The increasing importance of pulp and paper exports from Finland is brought out in a new report by the pulpwood export committee, which will probably be published soon. These exports, which represent 18½ per cent of the total exports during the period 1911 to 1913, rose to 44½ per cent of the total exports by 1932.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Kankakee, Ill.—The Fibre Drum Corporation, Kankakee, has concluded arrangements for purchase of a local factory and will remodel and improve for new plant. It is proposed to install equipment at early date for manufacture of fiber drums and other fiber containers. Plant is scheduled to be ready for service in May. T. E. Schultz is president.

Seattle, Wash.—The Western Containers, Inc., 5053 East Marginal Way, manufacturer of corrugated paper boxes and containers, will have superstructure placed under way at once for new plant at 4634 East Marginal Way, to be occupied under lease. General contract has been let to the Austin Company, Dexter-Horton Building, and other awards have been made to G. C. Jones, Seattle, for brick and masonry work, and to University Plumbing & Heating Co., Seattle, for plumbing and heating. It will be one-story, 150 x 246 feet, estimated to cost about $75,000, with equipment. Portion of unit will be used for storage and distributing service.

Chicago, Ill.—Paper Boards, Inc., 2555 West Taylor street, recently organized by E. L. Harding and associates, is said to be planning early operation of local plant for manufacture of paper board products of various kinds. K. Sorenson is interested in the new company.

Philadelphia, Pa.—The Paramount Paper Products Company, Inc., 226 Callowhill avenue, is running on a high production schedule, primarily for manufacture of glassine paper bags, for which the company has secured orders for over half a million. A sizable working force is being employed in all departments of the converting plant.

Bogota, N. J.—The Bogota Paper and Board Corporation, River road, has completed plans for construction of a new addition to mill, to be one-story and basement, located on the River road, reported to cost over $25,000, with equipment. Superstructure will be placed under way at an early date. T. B. Theim is company engineer, in charge.

Cleveland, Ohio—The Industrial Rayon Corporation, West 98th street and Walford avenue, is running on a 24-hour day basis at its local cellulose rayon mill, giving employment to full working quota in all departments. The branch mill of the company at Covington, Va., is operating on a similar full time schedule. It is expected to hold to this basis for an indefinite period.

Weslaco, Tex.—The Improved Container Company, Inc., recently organized by J. O. Frizzell, Weslaco, and associates, is said to be planning operation of local plant for the manufacture of paper boxes and containers. It is proposed to arrange equipment installation at early date.

Somerville, Mass.—The Centaur Paper Mills, Somerville, have leased space in building on Somerville avenue, and will occupy for local headquarters and distributing plant.

Canton, Ohio—The Canton Corrugated Box Company has developed a new container, particularly for bottled beer service, and plans heavy production schedule for the new unit.

Chicago, Ill.—The Hobart Paper Company, 111 West Washington street, has arranged for change in company capitalization from $200,000 to $158,000.

East Rutherford, N. J.—The Flintkote Company, Maple street, manufacturer of building papers, roofing papers, etc., has work under way on alterations and improvements in two-story plant unit, for which general contract was recently awarded to the Ferber Construction Company, 16 Johnson avenue, Hackensack, N. J., as previously reported in these columns. It is proposed to complete the improvement program at early date.

New York, N. Y.—The National Label and Box Company, Inc., has been organized by Herbert W. Schmidt and Theodore Topper, with capital of $10,000, to take over and succeed to the company of same name, manufacturer of paper boxes and containers, commercial paper products, etc., with plant at 163 Front street.

Toledo, Ohio—The Universal Container Company, care of Brown & Sanger, 1007 Nicholas Building, representatives, recently organized by Sholto M. Douglas and Otto H. Spengler, Toledo, with capital of 250 shares of stock, no par value, is said to be planning early operation of new local plant for the manufacture of a line of paper boxes and containers, including corrugated paper boxes.

New York, N. Y.—The Syracuse Container Corporation, 100 West Tenth street, Wilmington, Del., organized under Delaware laws, has filed notice to operate in New York, with capital of $100,000 and 5000 shares of stock, no par value, to manufacture paper boxes and containers. Theodore Pearson is president.

Sault Ste. Marie, Ont.—The Abitibi Power and Paper Company, Ltd., Iroquois Falls, Ont., is planning alterations and improvements in mill at Sault Ste. Marie, estimated to cost about $50,000. Work is expected to begin at early date, and will include betterments in power house, including installation of new boiler equipment. Latter program is reported to cost about $15,000, additional.

Bathurst, N. B.—The Bathurst Lumber Company, Ltd., has plans under way for the construction of a new sulphite pulp mill, to be equipped for an initial capacity of about 50 tons per day. Bids will soon be asked on general contract. Estimated cost not announced.

New Companies, Etc.

New York, N. Y.—The Manhattan Box Company, Inc., has been incorporated with a capital of $10,000, to manufacture paper boxes and containers. Max Abramson, 261 Broadway, is company representative.

Buffalo, N. Y.—Print-O-Pak Corporation has been organized with capital of 100 shares of stock, no par value,

to manufacture gummed paper tape specialties of various kinds. The incorporators include Harry Clavir, 622 Huron street, Toronto, Ont., and Herman Segal, 1518 East Eighth street, Brooklyn, N. Y.

New York, N. Y.—Bag and Sack Sales Corporation has been organized with capital of 100 shares of stock, no par value, to deal in paper bags and containers. Hugh Wright, 122 East 42nd street, New York, is principal incorporator.

New York, N. Y.—Handi Bag Company, Inc., Bronx has been incorporated with capital of $10,000, to manufacture and deal in paper bags, envelopes and kindred paper goods. Isidor M. Cohen, 261 Broadway, New York, is one of the incorporators.

Chicago, Ill.—The Lenox Paper Box Company has filed notice of company dissolution under state laws.

Middletown, N. Y.—W. M. Seeley & Son, Inc., has been incorporated with capital of $20,000, to deal in wall paper and kindred products. New company is headed by William M. Seeley and W. Irving Seeley, 109 East Main street, Middletown.

Brooklyn, N. Y.—Abety Paper Stock, Inc., has been organized with capital of $20,000, to deal in paper goods, waste paper stocks, etc. New company is headed by Frank Trezza, 212 North Sixth street, and Michael De Lorenzo, 165 Jackson street, both Brooklyn.

Escanaba Paper Co. Gets Deposits

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, April 24, 1933.—An entry signed the past week by Judge Edward T. Snediker in Common Pleas court, directed Ira J. Fulton, state superintendent of banks, to pay to the Escanaba Paper Company the sum of $19,073.92, the superintendent now being engaged in liquidating the Union Trust Company of Dayton.

The payment was ordered made to completely liquidate the claim, since the Common Pleas court held it to be a preferred claim and must be paid in full.

With the additional payment ordered by the court, the full deposit of the Escanaba Paper Company, $38,147.84, will have to be met.

The money was placed in the Union Trust bank by the Escanaba Paper Company to be used for the specific purpose of meeting interest payments on bonds, and was made a preferred claim on that basis.

The Union Trust bank closed its doors in October, 1931. After several vain efforts to reorganize, it was taken over by a Dayton bank and a payment of 50 per cent was made to depositors. The deposits of school children, however, were paid in full. There were some 75,000 depositors besides the school children.

Three of the biggest paper concerns in the Miami Valley were interested as depositors in the institution. But for the objections of two of these and another large stockholder, the Union Trust probably would have been reorganized as efforts in that direction were approaching success when a new plan was presented and accepted. Only the 50 per cent dividend has been paid.

Richmond Paper Box Co. Files Petition

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Me., April 24, 1933—The Richmond Paper Box Company has filed a voluntary petition in bankruptcy. Liabilities are given as $9,885; assets $5,820. Largest creditors: Secured—Carroll B. Skillen, $1,200; Maine Trust and Banking Company, $700. Unsecured—Robert Gair Company, $1,063; I. S. Skillen, $2,673; Carroll B. Skillen, $851.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 24, 1933—Henry L. Goodman, representative of the Beveridge-Marvellum Company, pany, Holyoke, Mass., is distributing a striking new book of Metaloid papers, made by that company. These papers are pyroxylin coated and metallic, having soil-proof, waterproof, fast-to-light and non-curling qualities.

Mr. Goodman is also distributing another new swatch of the Marvellum Company, consisting of metal rayon papers for box covering, in textile, hammered, crystal, vein, stipple, modern and brocade finishes, and in various shades of platinum and gold.

J. E. Catlin, of the Badger Paper Mills, Inc., Peshtigo, Wis., is in Boston in the interest of Ta-Non-Ka Bond, for which Knight, Allen & Clark, Inc., is New England agent. This paper, a watermarked bond, is an all-spruce sheet of unusual strength, high color, and clear formation. Arthur M. Burr is New England representative of the Badger Paper Mills, which manufacture a variety of products, including bonds, ledger, wrapping specialties, household papers, delicatessen paper and ice cream liners.

John F. Blackman, vice president of the D. F. Munroe Company, has returned to the office, having been out a week on account of illness.

Robert J. Treadwell has joined the sales force of Knight, Allen & Clark, Inc., and is covering the Boston territory.

Mr. and Mrs. F. Bendel Tracy have announced the birth of a daughter, Ann Whitney, at the Richardson House, on April 21. Mr. Tracy is head of the Fort Hill Paper Company.

The following called on the Boston trade recently: Lewis L. Claflin, Erving Paper Mills, Erving, Mass.; A. P. Mitchell, of the New York office of the Riegel Paper Corporation; R. L. Pease, vice-president of the Brownville Paper Company, Brownville, N. Y.; Robert Samson, Eastern sales representative of the Hoberg Paper and Fibre Company, Green Bay, Wis., and G. W. Stevens, of the Jessup & Moore Paper Company, Philadelphia.

John J. O'Connor Goes to Cohoes

DEXTER, N. Y., April 24, 1933.—John J. O'Connor, until recently superintendent of the Ron-Noc-O Paper Company, has accepted a similar position at the Cohoes mill of the Mohawk Papermakers Inc. and will assume his new duties immediately. The Ron-Noc-O Paper Company was organized here about two years ago by Mr. O'Connor but encountered difficulties which forced a cessation of operations. He succeeds Charles T. Wright, who had been connected with the Cohoes concern in an official capacity for several years. Mr. Wright has not announced his future plans but is said to be considering several attractive propositions. Prior to going to Cohoes the latter was prominently identified with a paper mill at Harrisville.

W. Clifford Wharfield Dead

HOLYOKE, Mass., April 25, 1933—W. Clifford Wharfield, 79, for many years connected with the American Writing Paper Company, Inc., and assistant treasurer at the time of his retirement some six years ago, died Saturday night at the Masonic Home in Charlton, where he had made his home for the past two years.

He was born in Windsor, Mass., December 21, 1853, and had lived in Holyoke over forty years. His wife died some years ago. He left two brothers, Wilfred M., of Longmeadow; and W. Fayette, of Springfield; and a sister, Mrs. Arthur C. Merritt, of Springfield.

WHY CANCER MAY BE CURED

Constant improvement in methods and facilities for the diagnosis of cancer have made it possible often to recognize the disease in time for successful treatment, and many cases of cancer unquestionably can be cured when correctly diagnosed in the early stages.

* * *

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NEW YORK, N. Y.

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Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm,
Washington Correspondent

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OFF THE GOLD STANDARD

History was made again at Washington last week. In addition to going off the gold standard, there was other dramatic news, but this was the most important. This step of the new administration was foreshadowed for sometime past, but it was not expected so soon. The precipitated action was taken in the bold, courageous manner for which President Roosevelt is becoming noted throughout the world to meet a grave crisis.

Startling in its suddenness it left many persons sadly confused as to its significance. The following statement from J. P. Morgan, head of J. P. Morgan & Co., whose reticence almost matches that of his illustrous father, praising the gold embargo as the best possible course under the circumstances was, therefore, of a specially inspiring character:

"I welcome the reported action of the President and the Secretary of the Treasury in placing an embargo on gold exports. It has become evident that the effort to maintain the exchange value of the dollar at a premium as against depreciated foreign currencies was having a deflationary effect upon already severely deflated American prices and wages and employment.

"It seems to me clear that the way out of the depression is to combat and overcome the deflationary forces. Therefore, I regard the action now taken as being the best possible course under existing circumstances."

Owing to the gold embargo and the practical certainty of the passage of inflationary measures, markets boomed and some commodity prices appreciated. Thus a consummation that has been long devoutly wished for—higher prices—was apparently given its initial impulse. Whether for good or bad, like to many actions of man, even those most noble in purpose, only time can tell.

Many highly respected economists are defending the President's program for inflation. Professor Irving Fisher, the widely known economist of Yale University, in a statement in part said:

"But 'we are now confronted with a condition, not a theory.' This condition is the opposite of Germany's when German inflation began.

"Few realize the gravity of our present situation. Our very national existence is at stake, even more than it was in the world war. Halfway, traditional and timid measures will no longer do. If the price level is not speedily raised, so that business, industry, and agriculture can be run again at enough of a profit to make sure that they are run at all and reabsorb the unemployed, and if that level is not raised enough to enable debtors to pay their debts and creditors to get their pay, this country will soon be over the precipice with bloodshed and revolution. There is, if my analysis of this depression is right, absolutely no escape from our present imminent danger except through reflation.

"Nor can we stop to cavil about methods. The situation is too desperate and imperative. The best method is whatever is the quickest. I, too, dislike to load on the President so much responsibility and power, but the alternative is a debate which will delay action, when there is no time to lose. We are at war and must intrust to our Commander-in-Chief the wartime powers necessary to win this sort of war.

"The open market operations which alone the objectors grudgingly admit might well be used, cannot be intrusted wholly to the Federal Reserve system. They had their opportunity a year ago and made insufficient use of it.

"The paper money which the objectors fear, is no more 'flat' than what we have, nor as much. Our dollar silver certificates are redeemable in only twenty-five cents worth of silver.

"The objectors fear if the medicine doesn't work, more will be tried. It certainly should be used until it works enough and then stopped. It can be stopped, for we shall be stronger, not weaker. We can then balance the budget. We cannot now. When we reach the price level which does the greatest good to the greatest number—not far from the 1926 level as calculated—we should stabilize as Sweden has.

"Almost all other nations have devalued their gold coins. No one should care what the dollar weighs if what it buys is properly safeguarded. It now is not 100 cents but 180 cents in terms of 1926 dollars. Debtors cannot pay 180 cents on the dollar, nor interest."

It must be acknowledged as Professor Fisher intimates, that our economic system is desperately ill and that under these circumstances, remedies out of the ordinary must be employed.

PAPER EXPORTS SHOW INCREASE

February exports of paper and paper products from the United States totaled $1,051,360, a slight increase over the January figure but a 27 per cent decrease when compared with the corresponding month last year according to the Paper Division of the Department of Commerce. Small increases over the preceding month occurred in

exports of boxes and cartons, writing paper, cover paper, wrapping paper, tissue and crepe paper, book paper, not coated, and fiber insulating lath or board, while small decreases were noted in envelopes, paper bags, filing folders, index cards and other office forms, wallboard of paper or pulp and surface coated papers.

Toilet paper scored an increase of 70 per cent, towels and napkins a 50 per cent increase and overissue and old newspaper an increase of 18 per cent over the January record. The heaviest decrease compared with January was registered in sheathing and building paper, amounting to only $4,133, or a decline of 72 per cent. Other heavy decreases were as follows: Bristols and bristol board, 57 per cent; wallpaper, 42 per cent; other paper board, 48 per cent; news print, 38 per cent; blotting paper, 30 per cent: boxboard of paper or pulp, 22 per cent.

When placed besides the figures of a year ago, heavy increases are noted in book paper, not coated, tissue and crepe paper, and toilet paper and slight increases in bristols and bristol boards, fiber insulating lath or board and fancy writing paper. On the other hand very heavy decreases are shown in overissue and old newspapers, surface coated papers, boxboard, sheathing and building paper, wall paper, envelopes, boxes and cartons, vulcanized fiber machine paper and slight decreases in paper bags, blotting paper, paper towels and napkins and wrapping paper, when sheets, strips, tubes and rods and cash register and adding compared with the same months last year.

February exports of paper base stocks were valued at $167,001, against $248,690 in January and $254,727 in February, 1932. Pulpwood exports were very low, amounting to only $5,713, against $32,565 a year ago and being only approximately one-third of the January record. Exports of sulphite wood pulp, with a valuation of $134,959 showed a 33 per cent decrease compared with January and a 20 per cent decrease when compared with February, 1932. Rags and other paper stock, while only slightly lower when compared with January, showed a 48 per cent decline when placed beside the figure of a year ago.

Imports of paper and paper products in February amounted to $4,297,368, a decrease of $2,603,249 from the figure of a year ago and a decrease of $1,628,314 when compared with the preceding month. News print imports were valued at $3,741,379, a heavy decrease when compared with both the preceding month and the corresponding month last year. Imports of cigarette paper, books and covers amounted to $224,860, a heavy increase over January, but a substantial decrease when compared with February, 1932.

Very heavy increases over the January receipts also occurred in tissue and crepe paper, paper board, pulpboard and cardboard, boxes and cartons, duplex decalcomania, not printed, and greaseproof and waterproof papers, while heavy decreases are noted in writing and drawing papers, paper and envelope combinations, leatherboard, test and wallboard, wall paper and papier-mache and pulp manufactures.

Paper base stock imports in February were valued at $3,378,811, compared with $6,678,583 a year ago and $4,446,319 in the preceding month. There was a slight increase in pulpwood imports over those of January, but a 80 per cent decrease when compared with the corresponding month last year. Imports of ground wood pulp, unbleached, were light, amounting to only $82,327, against $311,853 a year ago and being 37 per cent under the January arrivals, while the bleached also showed a heavy decline both when compared with the preceding month and with February, 1932.

Incoming shipments of sulphite wood pulp, unbleached were valued at $1,085,265, a 33 per cent decrease from the preceding month and a 150 per cent decrease from those of a year ago. The decline in imports of bleached sulphite pulp was less severe, falling only 10 per cent short of last month's record and 53 per cent from that of a year ago. Imports of unbleached sulphate pulp amounted to $735,769, being more than a half a million less than a year ago and showing a decrease of 18 per cent when compared with January. Bleached sulphate pulp, on the other hand registered a 48 per cent increase over January, while falling considerably short when compared with February, 1932.

Soda pulp imports, which amounted to only $1,685 showed the heaviest decline both when compared with last month and the same month last year. Rags for paper stock showed a slight decrease from the January figure but a very heavy decrease from that of a year ago.

Acquires Gillette Fibre Mills, Inc.

STILLWATER, N. Y., April 24, 1933.—The Stillwater Fibre Mills, Inc., announces the acquisition by purchase of the Gillette Fibre Mills, Inc. of this place. The Stillwater Fibre Mills, Inc., consists of a new personnel in management and representation.

The company has installed improved equipment and is prepared properly to serve the trade with high fibrous specialties and special purpose boards, including fibre, trunk fiber, pattern board, shoe perforating stock, button stock, stencil board, counter board, jacquard board and other fibrous specialties.

Eaton-Dikeman Co. Buys Mill

HOLYOKE, Mass., April 25, 1933—Holyoke is somewhat chagrined at being unable to secure the location of the Eaton-Dikeman Company in this city. Word was received Saturday that they had bought the mills at Mount Holly Springs, Pa., from the Mount Holly Glen Paper Company. The Eaton-Dikeman plant at Lee was burned last December and plants in Western Massachusetts examined included property of the American Writing Paper Company, Inc., in this city.

Paper Boards, Inc. Acquires Factory

CHICAGO, April 24, 1933.—Paper Boards, Inc., has acquired by quitclaim deed from John L. Kellogg, the former Kellogg Box Board Mill at the southeast corner of Taylor and Rockwell street, for an indicated $99,000. Tentative plans are being prepared by the new company to start operations in the plant, which has been idle for about two years. Transfer of title was filed at the county recorder's office last week.

FOR PAPER MILLS which use reclaimed pulp, the

SNOWHITE PROCESS

for DE-INKING, DE-FIBERING waste paper . . .

You'll find this process an innovation in the paper industry because Snowhite

- **ELIMINATES** the use of steam or hot water, eliminates shredding
- **RESULTS** in larger yields of stronger, cleaner, whiter and more uniform stock
- **EFFECTS** a substantial saving per ton by requiring less power, labor and heat.

Paper Mills are requested to write for information regarding the application of this economic, efficient process.

American Cyanamid & Chemical Corporation

535 Fifth Avenue, New York

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

The McDonnell Fourdrinier*

By Frank S. McDonnell[1]

Abstract

A description of a fourdrinier provided with a mechanism that will shake the wire approximately midway in its effective length and a statement of the advantages obtained.

The speeding up of fourdrinier machines in our mill necessitated the development of a new type of fourdrinier shake in order to make as well-formed a sheet of paper as was made at slower speeds. The faster we ran our machines, the further away from the slices moved the space in which the most effective formation of the sheet could be obtained, and this condition of affairs could not be taken care of with our old style, conventional fourdrinier shakes, where maximum movement was applied at the breast roll and diminished from that point to nothing at the suction boxes. To duplicate on a fast running machine, the conditions which exist on slower machines, it is necessary to apply the maximum shake stroke at a point in the forming space on the wire much in advance of the breast roll and slices instead of at the breast roll as formerly.

As the speed of fourdriniers is increased, the point of maximum shake application must be advanced forward of the breast roll more and more, and when paper machines are built to travel 1500 feet per minute, it is probable that the maximum shake will have to be applied 25 or 30 feet in front of the slices. This is true since great violence of shake is impossible at the breast roll because of the amount of water mixed with the stock, its turbulence and the presence of deckle straps, or their equivalent, which tend to set up waves and throw the stock about. The greatest violence of shake which can be applied effectively to stock on the wire of a paper machine can be applied in the middle of the forming area, where the stock is still in suspension but where a considerable part of the water has drained out of it.

The direct application of shake to the center of the wire makes it advantageous to use longer wires. As already stated the amount of shake which can be applied at the breast roll of a paper machine is limited, which means that in the case of a conventional fourdrinier part any increase in the length of the forming table brought about by lengthening the wire is, to all intents and purposes, at the suction box end. Since this invention applies shake effectively in the center of the wire, where of all places the application of shake is the most effective, any increase in the length of the forming table brought about by lengthening the wire is in the case of the McDonnell shake, to all intents and purposes, in the center. In recent years it has not been uncommon to hear the statement made that as much book paper can be manufactured on a 65-foot wire as on one of greater length, but with the McDonnell shake in existence this is no longer true. I am convinced that wires should not be less than 80 feet long to give maximum results, and believe that even longer wires will be found desirable as speeds are increased.

Increased Speed of Shake

Now, in addition to solving the riddle of applying maximum shake at the correct point, if a paper machine is to be speeded up, it is also necessary to face the question of increased shake speed. Faster running calls for faster shaking. If 200 complete shakes per minute is necessary to obtain proper formation of the paper on a machine running at 200 feet, something in the neighborhood of 400 complete shakes per minute will be necessary on a machine running at 400 feet. We all know however, that ordinary fourdriniers cannot be shaken for any length of time faster than 300 shakes per minute without going to wrack and ruin, because of the weight of the table roll, breast roll, and supporting frames.

The obvious solution of increased shake speed, is to shake the wire without shaking the table rolls and frames, thus minimizing the weight of materials to be shaken. This we have done, and are able at the present time to maintain a shake of 700 complete strokes per minute. We shall be able to shake 1000 strokes per minute, whenever a shake head has been developed to stand up continuously to such a speed.

Description of the McDonnell Shake

The table rolls and their supports are unshaken, as in a news machine. The breast roll is disconnected from the rest of the table, set up on springs, and attached to a shake head which is variable as to speed and length of stroke. Approximately in the middle of the wire forming space, the wire runs over a transverse shaking member, also set up on springs. This member is so designed that when shaken it will grip and shake the wire. To it is attached a second shake head, variable as to speed and length of stroke. It is this middle shaking member which is the real meat in the cocoanut.

The middle shaking member which we are now using in our mill is a soft rubber covered roll about two or three times the diameter of the table rolls. This is raised above the level of the adjoining table rolls so that the wire bends over it in passing.

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933.
Contribution of the TAPPI Paper Manufacture Committee.
[1] Superintendent, Tileston and Hollingsworth Company, Boston, Mass.

Some of you may look askance at the contour of the wire as it passes over the middle shake roll. This, we assure you, is not any cause for worry as we have proved, after two years of successful operation, both to ourselves and to many others high up in the art of paper making. Some of the reasons why we can successfully run the wire over this angle without injuring formation are that the stock is considerably dewatered at this point, and that the whole mass of stock and water is completely under control of the rapidly moving middle shaking member and the stock does not break up or flow upon the wire. This middle shake has greatly minimized the tendency of the wire side of the sheet to be fuzzy. This we attribute to the application of a positive action at a point in the process of formation where the stock has been considerably dewatered.

So great is the travelling grip of our shake roll upon the wire that it will move the wire back and forth 1000 shakes per minute without slip; so harmless is its grip that the life of our wires, reckoned in feet run, is approximately the same as with our old style of fourdrinier shake.

Combinations of Shake Applications

Numberless combinations of shake application may be obtained with the equipment just described, and an opportunity is afforded to study the effects of various shake applications and to choose the most advantageous. The relative lengths of stroke of the middle member and of the breast roll may be altered at will, or the breast roll shake may be stopped entirely. In addition, the relative shake speed of the breast roll and of the middle member may be altered at will. They may be shaken at the same speed, or the middle member may be shaken from twice to several times as fast as the breast roll. All of these combinations of shake application can be put into operation without interrupting the production of the machine.

It is our experience that as the speed of a paper machine increases it is necessary to apply greater and greater violence of shake to the center of the wire, and less and less violence of shake at the breast roll. The latter may be accomplished by cutting down the length of stroke at the breast roll, or by cutting down the speed of stroke. We believe that it is sometimes valuable to be able to use a long, slow stroke at the breast roll and a short fast stroke in the latter stages of fiber formation.

Wire Pitch and Hydrostatic Head

Having solved the problems of increased shake speed and an improved shake motion, there still remains a third problem which it is necessary to solve if a paper machine is to be run at maximum speed. The highly diluted mass of stock issuing from the slices must be spread upon the wire uniformly and given the same forward speed as the speed at which the wire is travelling, so that the wire will not roll the stock over. Two methods are commonly in use for getting the stock to travel forward at the same speed as the wire. One of these is a high head behind the slices and the other a downhill inclination, or pitch, of the wire. We believe that the best results can be obtained by combining the two. We make a practice of pitching our wires downhill when operating at any considerable speed as well as carrying a considerable head behind our slices.

Since we make a good many different kinds of paper and a good many different weights it is necessary for us to alter the pitch of our wires constantly, and we have invented a scheme for making these alterations which is peculiarly adapted to our improved method of shake, and a great advantage over other methods heretofore employed because of the ease with which it permits the machine tender to change his pitch, even while running.

Effective pitch can only occur for a comparatively short distance in front of the slices because after that the stock and water is being carried forward by the wire. The first part of the wire, where the stock is very dilute and flows readily, is the only place where inclination of the wire is of assistance. Our middle shaking member is at the end of the area where pitch is effective, and it is therefore possible to alter pitch by raising and lowering the middle shaking member without changing the position of the breast roll. When the middle shaking member is raised the pitch becomes less, and when it is lowered the pitch is increased. When the middle shaking member is raised so that the wire is level between it and the breast roll it also becomes necessary to raise the wire at the suction boxes, so that the slope from the middle shaking member to the suction boxes will not be unduly great. Our invention consists in putting jacks, operated by a motor, under each end of the middle shaking member, and a second set of jacks, also motor operated, under the suction box end of the wire.

I hope you will agree that the McDonnell fourdrinier is a real step in advance in the art of paper making. In our mill, we have in some instances increased our production 100 per cent, and in no instance less than 25 per cent. Where previously the neck of the bottle, as far as greater production was concerned, was formation, it is now anything else but that. Beating, screening and water removal may have to be stepped up in order to keep pace with additional forming capacity, but we have not as yet reached the end of our forming capacity. It seems as though anything which makes possible so much increase in production as does the McDonnell fourdrinier, without loss of quality, and in many cases with improvement to quality, is entitled to be regarded as a permanent addition to manufacturing practice.

To License Machine Builders

Arrangements have been made with Rice, Barton & Fales Inc., of Worcester, Mass., to produce the McDonnell fourdrinier and to license other machine builders who wish to build it also. The cost should not be substantially different from other types of fourdriniers and the cost of operation should be substantially less.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has announced the following elections to membership:—

L. Gilbert Durant, chief chemist, E. B. Eddy Company, Ltd., Hull, P. Q., attended Columbia University and was formerly a chemist with the Union Bag & Paper Corporation, Hudson Falls, N. Y.

Alfred M. Harvey, paper inspector, Pacific Mills, Ltd., Ocean Falls, B. C., attended the Vancouver, B. C., Technical School.

Byron E. Lauer, chemist, Northern Paper Mills, Green Bay, Wis., has been transferred from Junior to Active membership in the Technical Association.

Harold S. Hill, director of research, Price Bros. & Co., Ltd., Quebec, P. Q., received his Ph. D. degree from Yale in 1922. Dr. Hill was formerly chief chemist for the James P. Hooper Manufacturing Company of Baltimore, Md., and research fellow of the Canadian Pulp and Paper Association, Montreal, P. Q.

Henry I. Morton, chemist, Oxford Paper Company, Rumford, Maine, has been transferred from Associate to Active membership in the Technical Association.

Harold E. Wright, laboratory superintendent, Kimberly-Clark Corporation, Niagara Falls, N. Y., is a graduate of Ohio State University and was formerly chemist with the Champion Coated Paper Company, Hamilton, Ohio.

A Proposed Standard Instrument for Classification of Papermaking Fibers According To Length *

By G. D. O. Jones,[1] C. Alexander,[1] T. W. Ross,[1] and H. Wyatt Johnston[1]

Abstract

An instrument[2] has been devised to classify fibers according to length by presenting them broadside-on to a series of wire-mesh screens by imparting to a liquid suspension of fibers a velocity parallel to the screen which is large compared to the velocity of flow of the liquid through the screens, thus minimizing endwise presentation of fibers. The literature is reviewed, the development of the investigation traced and a proposed standard instrument described in detail. The experimental results underlying the design and operation of the instrument are described. Groundwood pulps representative of Canadian practice have been studied with the instrument and some chemical pulps investigated.

As a result of the work of J. S. Hart, H. R. Patton and H. Wyatt Johnston[3], the committee on physical standards of the Canadian Pulp and Paper Association, Technical Section, were asked to investigate the method described with a view to the possibility of its adoption as a standard method by the Technical Section. In what follows, the results of this investigation will be found in detail. The report is divided into four parts. The first part deals with the principle underlying the method, the literature of the subject, and the development of the investigation. The second part covers the design of the instrument and includes a specification for the construction of the proposed standard instrument. The third part describes the proposed method of operating the proposed standard instrument and the experimental evidence on which the procedure is based. The fourth part describes a study of representative Canadian groundwood pulps undertaken in cooperation with the committee on groundwood pulp of the Technical Section and also some experiments on the classification of some sulphite pulps. Working drawings have been prepared. No steps have been taken to ascertain costs of manufacture but patent applications have been filed here and in the United States and the applications registered under the international convention.

Part I—The Development of the Proposed Classifier

The instrument will be referred to as "the proposed classifier."

The proposed classifier has been designed to grade paper-making fibers in classes according to their length and to determine the proportion by weight of each class present in a sample of pulp.

The proposed classifier was devised by Dr. H. Wyatt Johnston, chemist, pulp and paper division and was so constructed at the Forest Products Laboratories of Canada, 3420 University St., Montreal, P. Q. in 1932.

In order to grade papermaking fibers according to length it is necessary to present the fibers broadside-on to the apertures in a screen or grating in such a manner that fibers shorter than the diameter of the apertures will be allowed to pass through the apertures and fibers longer than the said diameter will fail to pass. In order that the separation may continue the retained fibers must be removed immediately from the vicinity of the apertures and fresh fibers presented for separation.

An end-on motion of fibers, such as occurs in commercial screening operations, results in a classification more or less based on slenderness as well as length and should therefore be avoided as much as possible.

The formation of even a very loose mat of fibers in the vicinity of the apertures encourages end-on motion of fibers, enmeshes small fibers in the fibrillae existing on longer fibers and tends to substitute for apertures of known dimensions an irregular structure of passages and interstices in a mat of interwoven fibers. The filtering medium is thus made to depend on the material to be separated, which is not desirable.

Investigators have frequently attempted to grade papermaking fibers using either modifications of commercial flat-screens or the nest of shaking-screens commonly employed for pulverized materials.

Per Klem[4] describes a cylinder with a detachable bottom of wire mesh agitated by a hand-operated stirrer actuated by a long-pitch screw and rachet, by means of which the fine fibers or "flour" may be separated from mechanical pulps.

John Campbell[5] describes the series of oscillating screens in which the vibration takes place in the liquid medium and is imparted by an oscillating diaphragm. The screens (0.010 inch slotted plate, 10, 20, 30, 50, 90 and 200 mesh wire screen) are mounted in trays which are clamped one above the other with the coarser screens on top, the vibrating mechanism being located below the last screen. A suspension of fibers is allowed to flow on to the top screen after all air has been expelled by water from the system and the effluent from the bottom section is removed through a water-seal. After a period the system is allowed to drain and the fibers retained above each screen collected, dried and weighed.

Price Bros. and Co., Limited[6] have modified the device used by Campbell by substituting circular trays for the oblong trays used formerly and also by increasing the frequency of vibration to 750 reversals per minute, thus securing improved separation on groundwoods.

E. R. Shafer and L. R. Carpenter[7] in their work on solid fraction as a measure of pulp quality, describe a cascade of flat screens which they used to prepare samples for beam testing.

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933.
A contribution from the Pulp and Paper Division, Forest Products Laboratories of Canada, 3420 University St., Montreal.

[1] Forest Products Laboratories, Montreal, P. Q.

[2] Patents applied for in Canada and the U. S.

[3] J. S. Hart, H. R. Patton and H. Wyatt Johnston. Proceedings of the Technical Section, C.P.P.A., January, 1932, and Pulp & Paper Magazine of Canada, 32, 252 (1932).

[4] Per Klem, Pulp and Paper Magazine of Canada 28, 173-5 (1929).

[5] John Campbell, Pulp and Paper Magazine of Canada 30, 557-8 (1930).

[6] J. S. Bates, Private communication.

[7] E. R. Shafer and L. R. Carpenter, Paper Trade J., May 8, 1930; Tech. Assoc. Paper p. 268-9, May, 1930.

They describe a number termed the "coarseness modulus" which they propose as a measure of pulp composition, obtained by taking the cumulative sum of fractions of the sample retained above a given screen and the preceding screens.

They assign strength values to the fractions obtained from chemical and mechanical pulps. In the case of mechanical pulps the finer fractions possess the higher values for burst and breaking length and lower values for tear.

J. L. Somerville[8] describes a method employing successive screening with a single flat screen using different wire meshes, followed by measurements and counts of fibers. He analyzes statistically the distribution of fibers for a number of pulps.

W. E. Adlington and E. P. Cameron[9] describe a large number of tests of laboratory groundwood samples using the apparatus described by Campbell, but found that the variations in the methods prevented any relations between coarseness modulus and other sheet properties being deduced. Variation of size of sample, initial dilution and time of screening did not serve to reduce the discrepancies observed.

J. S. Hart, H. R. Patton and H. Wyatt Johnston[10] describe a series of experiments with an enlarged apparatus of the Campbell type, a single flat screen with and without jets and stirrer and a series of propeller-agitated non-oscillating screens arranged in cascade.

A propeller type of stirrer was introduced to break up matting of fibers. The speed of separation improved, but the tendency to separation partially by diameter persisted. By introducing a draft tube surrounding the propeller the circulation was improved and with it the accuracy of separation. By fitting a baffle to the edge of the draft tube and parallel to the screen, thus giving the suspension a sensibly uniform motion over the wire surface, the sharpness of separation increased remarkably. The oscillating mechanism was then stopped, and the sharpness of separation again increased.

A series of three non-oscillating screens was next constructed and the results obtained reported at the annual meeting of the technical Section C.P.P.A. in 1932.

H. Wyatt Johnston then designed and improved an instrument which would operate more conveniently, basing the design on a series of unpublished experiments using streamline surfaces and higher rates of flow and stirring.

As a result of experience gained with this second design, extensive mechanical improvements were introduced. It was found that the increased agitation caused a vortex to form in the throat of the baffle, thus entraining air in the entering liquid. By carefully expelling the air initially present, the apparatus would take 20 liters per minute at the start, but this rate rapidly diminished to 10 liters per minute. On stopping the screens it was invariably found that air had entered the apparatus although the vortex never broke the seal at the bottom of the inlet tube. The solution lay in the discharged pipe, which in the first design had been submerged at its exit, but now discharged horizontally into the tray on top of the lid of each unit. The finer screens, for a reason which will appear, at first took a higher flow than the preceding coarser screens. The tray soon ran dry and exposed the end of the discharge pipe through which air entered under the screen, thus breaking the suction and shutting off flow, causing backing up and overflowing in the preceding screen. The lower screens, deprived of the flow required to keep them full, sucked air and overflowed in their turn unless the water admitted to the top screen was throttled.

By introducing a bend into the discharge pipe so that a water seal was formed it was found that a steady rate of flow could be maintained, and that there was no tendency to entrainment of air providing the entering liquid was directed so as to sweep the tray with a swirling motion.

At this stage another curious result was obtained. The finer screens were capable of taking a much greater throughput of liquid than the coarser screens. This seemed absurd but was confirmed by measurement. By interchanging screens it was found that the units were alike in this respect. Since the finer screens passed more liquid it appeared likely that the effect was due to the impeller acting as a pump and sucking water *upward through the screen under the impeller*, thus causing short-circuiting of liquid. Fine screens, offering more resistance, decrease this effect. By fitting a circular baffle on the screen plate the rates of all screens were made equal to 20 liters per minute. No variation in the rate of flow was observed during a period of one hour running steadily.

An impeller of a type used in single-suction centrifugal pumps was tried and found inferior to the propeller type. Suction upward through the screen was increased and the rate of flow diminished with the pump-type runner. The propeller type directed a slip-stream against the screen over the surface of which the liquid spread out uniformly in all directions, giving a minimum suction due to venturi effect.

It was found that the first four screens tried (ranging from 28 to 200 meshes per lineal inch) worked well with a disc baffle attached to the wire and equal to the diameter of the impeller and throat, that is, three inches. The baffle is formed of brass discs on each side of the screen with a 1/16 inch crepe rubber gasket under each of the discs. Countersunk flat-headed machine screws and nuts were used to hold the discs together. It had been found that the suction of the impeller tended to pull the screen or the disc in contact with the impeller, so that the disc acted as a protection, besides serving to stiffen the wire screen.

When coarse meshes were used 3 inch discs were not adequate, but with 4 and 8 mesh wires a 4 inch disc was quite satisfactory. A 14 mesh wire, on the other hand exhibited a maximum resistance to flow. Even a 14 mesh backing wire, which with a 100 mesh wire on top took 20 liters without hesitation, refused to take more than 16 liters per minute with the fine wire removed. By using a 5 inch disc this difficulty was overcome. No explanation for the result has been obtained. Switching screens in units or switching impellers had not the slightest effect.

An attempt was made to employ a 0.010 inch cut plate of circular shape with slots parallel to one diameter. Fine groundwoods and some commercial groundwoods worked very well, but the presence of much screenings caused the plate to plug up. Not even the greatest care in introducing the sample slowly was of any use.

Accordingly the original Campbell vibrating screen was cut down to work with one cut plate only and speeded up to 800 oscillations per minute. It was found that by feeding slowly even groundwood tailings could be fed with water flowing through the whole series of six units at the rate of 20 liters per minute, only about 2-3 per cent of the sample remaining on the 0.010 inch cut plate. On the other hand, if the sample was fed too fast anything up to 90 per cent of the sample could be retained. The value of the determination using a cut plate is therefore not very clear. On the other hand much of what now passes the cut plate would be retained on 0.010 inch cut plates in ordinary screening.

[8] J. L. Somerville, Paper Maker and Br. Paper Trade J. Supplement 83, T. S. 119 (1932)—126.
[9] W. E. Adlington and E. P. Cameron, Quart. Rev. F. P. L. of C., Jan.-April, 177-180 (1931).
[10] J. S. Hart, H. R. Patton and H. Wyatt Johnston. Proceedings Tech. Section, C.P.P.A., 1932, and Pulp & Paper Magazine of Canada 32, 252 (1932).

Part II—Description of the Proposed Classifier

The proposed classifier consists of five motor-agitated units, arranged in cascade, through which water flows steadily from a constant level tank. The sample is introduced into the first unit and after seven and a half minutes the classifier is stopped, each unit drained separately and the fibers caught on each screen removed and weighed.

CONSTRUCTION OF TYPICAL UNIT

The construction of a typical unit is shown in Figs. 1 and 2. The method of arranging the units used in the experiments described in this report is shown in Fig. 3. A precisely similar arrangement will be used in the proposed standard instrument, except that all units will be of standard pattern as described below. The method of construction for each portion of the instrument and the reasons on which the design was based will be found below. A brief description of the parts and action of one unit will first be given.

A single phase induction motor, controlled by a snap switch and a master switch, is mounted as shown at (1) by means of a bracket (2) which permits the motor to be aligned readily with the impeller shaft (3) without special mechanical skill on the part of the operator.

The impeller (4) consists of a propeller with flat blades set at an angle to the axis whose tangent is 0.10. The impeller runs in spider bearings (5) and (6) and is driven by a coupling (7) fastened to the motor shaft.

The inlet tube (8) is cast integral with the casing (9) and, besides introducing the liquid entering the apparatus into the casing, supports both the spider bearings (5) and (6) and also the baffle (10) around which circulation takes place. The inlet tube likewise serves to prevent air entering the casing.

The casing (9) is cast with brackets at the back (not shown) which serve to mount the instrument on a wall or panel. The casing, through the inlet tube (8) supports

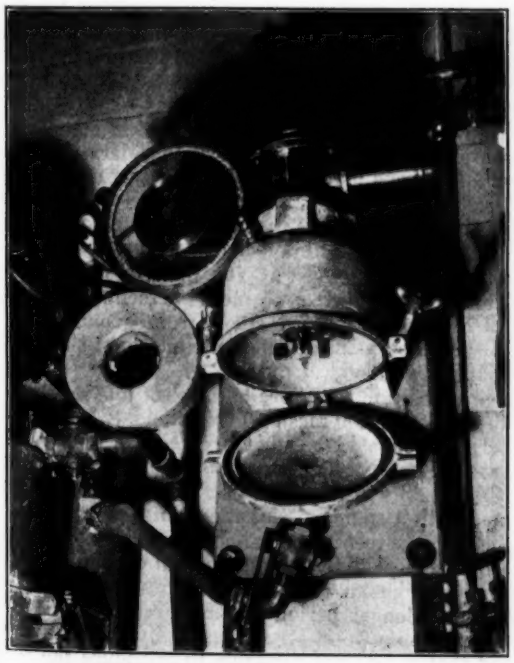

FIG. 2

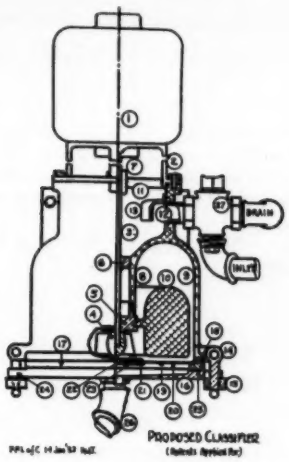

FIG. 1

both the impeller (4) and the baffle (10) and aligns them axially besides which the casing (9) receives the motor bracket (2). The top of the casing (9) is shaped into a deep tray (11) through an opening (12) in the side of which the entering liquid passes. A deflector (13) is used to impart a swirl to the liquid entering the tray and prevent splashing and entrainment of air. A vent is fitted at the highest point of the casing to permit expulsion of air in filling the latter. At the back of the casing is a hinge (not shown) attaching the bottom lid so that it can hang clear and permit the withdrawal of the baffle (10) and the impeller and shaft, (3) and (4). Hinge-bolts (14) and wing-nuts (15) serve to clamp the screen-holder (17) between the bottom lid and the casing, the gaskets (18) and (25) sealing the joints.

The screen-holder (17) is a flat bronze ring into a recess in which is sweated the wire mesh disc (19) which is the screen proper. Wire screens below 14 mesh are fitted with a 14 mesh backing wire (20). A disc baffle (21) clamps both backing wire and screen together, protects the screen from abrasion by the impeller and prevents fluid which has once passed through being sucked back again by venturi action. The disc baffle (21) consists of a rubber gasket (22) on each side of the screen, clamped between two brass cover plates (23) by small bolts with countersunk heads. A rack is provided to house screens when not in use.

The bottom lid (16) is hinged so that it hangs down when open so that the impeller (4) and shaft (3) can be withdrawn and the baffle removed without removing the bottom lid. When closed the bottom lid (16) holds the screen-holder (17) against the casing (9) by means of hinge-bolts (14) and wing nuts (15) bearing on lugs (24), gaskets (18) and (25) sealing the joints. A drain connection (26), with a two-way cock for adjustment of rate flow, delivers the effluent to a three-way cock (27) which permits it to enter the tray (11) of the next unit or go to waste as desired when draining the liquid from the fibers retained above the screen (19).

The baffle (10) is attached to the lower spider (5) bearing by a bayonet-locking device with lugs on the inside of the baffle which engage with the outside of the bearing between a ring which prevents the baffle entering too high and lugs which hold it from falling. Pins prevent overtravel and the rotation of the fluid tends to lock the baffle in place.

The baffle can be removed by hand for cleaning.

Appearance of Proposed Unit

Fig. 2 shows the appearance of the proposed unit. Note the motor on its bracket seated in the top of the tray, the feed line from the preceding unit with its three-way cock, the vent cock for expulsion of air, the wing-nut and hinge-bolt on the right of the casing. On the left is shown the baffle, with the locking lugs visible, and above it a typical screen holder with an 8 mesh screen and 4 inch disc baffle. Inside the mouth of the casing is shown the inlet tube and the lower spider with its locking lugs, and below the bearing the impeller runner with its boss and blades visible. The bottom lid is seen hanging down, with the drain hole, gasket, drain connection and regulating cock at the bottom of the picture. The panel used to mount the apparatus is shown.

Arrangement Used in Experiments

Fig. 3 shows the arrangement used in gathering experimental evidence on which to base the design of the proposed classifier. While the units shown are of an earlier pattern, not quite as handy to use as the proposed type, their performance is quite satisfactory. The picture shows the method of arrangement in cascade. The constant-level tank for water supply is not included; it lies above the first unit. On the extreme right is an oscillating flat-screen used to try out the desirability of running a cut screen-plate in series with the mesh screens; none of the runs were made with this unit in series except a few to try it out. Note the panel of snap-switches for each motor and a master-switch behind it, the three-way cocks, separate drains and feeds to each tray, the method of collecting the waste and sending it to the sewer and, on the extreme left, the old freeness-tester used to draw a representative sample of white-water for examination or calibration of rate-of-flow. In the foreground is a flight of steps to reach the upper units, with a sample can and pail. In a graduated cylinder on the table may be seen a sample ready to run, a rack for screens, a 4-mesh screen in its holder, a weighing box, a cambric filter-cloth, a filter-holder for filtering samples and a stop-watch. A drying-oven and a chemical balance (neither shown) complete the equipment. The difference in level is 14 inches between screens and the scale of the apparatus may be judged from the door, which is seven feet high.

These proportions have been tested and found to give satisfactory results. Figuring the capacity of the casing (with baffle in place) at 2.50 liters, the liquid in the casing is changed completely 8 times a minute and circulates completely about 800 to 900 times a minute, making the velocity parallel to the screen 100 times greater than through the screen. The maximum concentration at any time cannot exceed the following values.

Size of Sample	Consistency
10 grams	0.40 per cent
20 grams	0.80 per cent
30 grams	1.20 per cent

In general the consistency after two or three minutes will seldom exceed from 5-20 per cent of these values.

Two bearings ensure the propeller running true. It is easier to make the groove on the bearing than in the baffle. The spiders being always swept by stock do not accumulate fibers.

The baffle has a net weight immersed of 1.75 times its displacement of water. It is easily removed and the fiber only adheres to the lugs. It is easy to make a true fit by turning the faces of the lugs.

The impeller is more efficient than a pump impeller type and does not cause as much upward suction through the screens. The slip-stream strikes the baffle and spreads sideways, the upward suction on the plate resulting from a well known theorem in hydraulics.

Screen-holders are made of bronze and are recessed so that when sweated in place the screen and backing-wire will be flush with the surface. Each screen is marked with the size of mesh used. On each side of the plate is placed a disc baffle of brass plate on top of a gasket of crepe rubber, the whole being bolted together. From 28-mesh to 200-mesh a 14-mesh backing-wire is required.

Screens from 28-mesh to 200-mesh require 3 inch baffles. Screens from 4- to 8-mesh require 4 inch baffles. A 14-mesh screen requires a 5 inch baffle. With these baffles a flow of 20 liters per minute can be obtained with any stock.

Bronze hinge-bolts and wing nuts are used to clamp the screen-holder and bottom lid to the casing.

This arrangement allows the bottom lid to fall enough to permit removing baffle or propeller readily, and enables a flexible connection to be made with a length of 1 inch i.d. by $\frac{1}{16}$ inch wall rubber tubing leading into the bull end of the three-way cock on the next unit. In setting up the two-way cock is set permanently to give twenty liters a minute flow.

The number of screens to be included in standard sets of apparatus is governed by two considerations. Any number of screens may be arranged in cascade and operated together, but more than six require a difference in level of over six feet and increase the time for testing in direct proportion to the number of screens.

Ordinarily wood pulps fit for making paper will be found to lie mostly below 14 mesh; screenings lie chiefly above 14 mesh. Accepted stock from groundwood re-screens will show considerable amounts on 14 mesh, and so will unbeaten chemical pulps.

A logical solution therefore is to select five screens, 14-, 28-, 48-, 100- and 200-mesh (Tyler standard) the size of the aperture being double that of the next finer mesh in each case. For studying screenings a series including 4, 8, 14, 28 and 48 will be found useful. The results can be combined with a standard classification.

While a cut screen plate cannot be used in place of a standard screen plate by remodelling an oscillating screen, it became possible to run in series with the normal five screens, but a longer period was required. It was found that out of groundwood screenings so little retention was observed that it was not desirable to introduce the screen plate unit as part of the standard instrument. Table 8 shows the results obtained. Of the 8.1 per cent retained

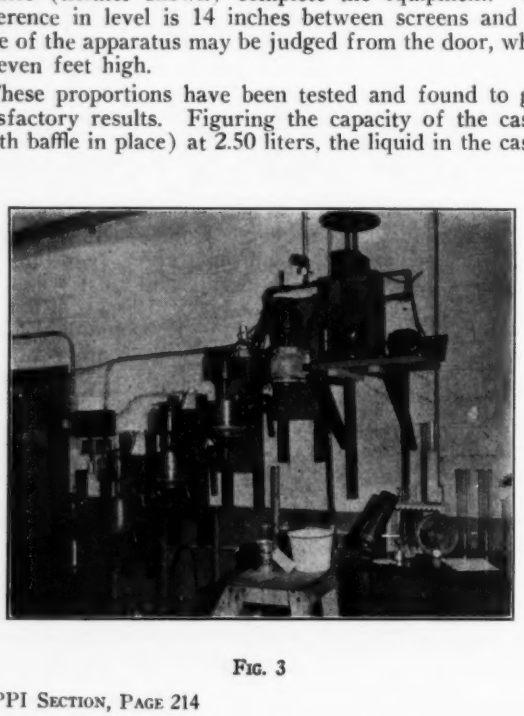

Fig. 3

on 14 mesh 0.5 per cent would stay on 4 mesh and 2.2 per cent more on 8 mesh.

EFFECT OF PRELIMINARY SCREENING WITH 0.010 INCH CUT SCREEN PLATE IN SERIES WITH STANDARD APPARATUS GROUNDWOOD WITH 20 PER CENT SCREENINGS ADDED

	Per cent Retention on					
0.010"	14 Mesh	28 Mesh	48 Mesh	100 Mesh	200 Mesh	Past 200
....	8.1	20.7	11.1	16.8	12.0	31.3
0.5	10.3	18.2	10.9	16.6	11.5	31.9
	(Times equivalent)					

It will be observed that little information is gained from the cut plate which could not equally well have been obtained by a second sample using an 8-mesh screen.

The first unit is fed with water from a constant-level tank. Two two-way cocks are used. One is a shut-off, the other being a regulator set for 20 liters per minute. The remaining units are fitted with three-way cocks arranged with the bull end looking to the rear then down and forward to an angle of 30 degrees to the wall to receive the flexible tube from the preceding unit. The outer end of the run of the three-way cock is piped to a drain.

It is without effect on accuracy, as soon as the run is completed, to set the three-way cock to drain as a mat forms at once.

The motors are vertically mounted split-phase induction motors, one-fourth horse power, 60 cycle, single phase, 110 volt, 1760 r.p.m. with a snap switch, and overload relay and a master switch on all motors.

These motors have been found to be satisfactory. Where 25 cycle power is used the impeller pitch must be altered.

All motors should have individual snap switches, be controlled by a master switch, and protected by relays in preference to fuses.

Part III—The Method of Operating the Proposed Classifier

Preparation of Sample

Great accuracy of dilution is not essential except in precision testing. Regular stock may be diluted by volume for control tests.

Samples for transmission or storage prior to testing should be poisoned by adding 1 part of formaldehyde to 20,000 part of sample by volume, drained on a 70 to 60 mesh fourdrinier wire not over 6 inches in diameter, pressed in a hand press to expel water, wrapped in sulphite lap or waxed paper, labelled distinctly and marked in indelible pencil on the face of the pat. Not less than 100 grams dry weight should be drained in one operation nor should a sample less than that size be shipped.

Samples so packed arrive in good shape and can be tested or re-tested weeks afterward. In warm weather samples should be poisoned if they are to stand overnight. The use of sample tins is expensive, and unpoisoned samples in tins keep badly. If it is desired to keep slush samples in tins overnight or for a few days, a few drops of chloroform may replace formaldehyde, provided the tin is kept closed, but such samples should be poisoned as above if they are to be stored for a long period. Care in marking the pat itself is essential.

In many cases not enough attention is paid to securing a representative sample. This is particularly true in studying the performance of screens, paper machine wet-ends, digester yields, grinder production, etc. Where samples taken at different times or locations are to be used for calculations, each sample must be taken from a larger sample collected in a regular manner over a sufficient period and, in the case of wide streams of pulp, across the full width of the stream. The large sample should be well mixed and a sufficient sample extracted at once in one operation. No result is more accurate than the original sample.

The standard sample for a classification is 20 grams.

The effect of variation in size of sample is slight, as may be seen from Table I.

TABLE I
INFLUENCE OF SIZE OF SAMPLE ON CLASSIFICATION

Size of Sample	Per Cent Retention of Groundwood on					
Grams	14 Mesh	28 Mesh	48 Mesh	100 Mesh	200 Mesh	Past 200
10	1.1	15.5	14.8	19.4	13.9	35.3
20	3.3	19.3	12.9	18.1	12.2	34.0
30	3.0	23.1	11.6	17.9	12.4	32.0

For control tests regular stock under good control may be diluted by volume, a consistency sample taken, and the main sample run without waiting for the consistency to be determined. In precision testing stock shall be diluted to exact consistency within 0.1 per cent.

The consistency of the sample should be 1.0 per cent.

The use of a standard dilution facilitates correct introduction of the samples without matting or over-flowing. For control purposes regulator stock may often be diluted by volume and a consistency determined later from a sample set aside for the purpose. The use of 0.3 per cent freeness stock involves the introduction of 6 liters of liquid, which requires careful throttling of the entering water while the sample is being added, and is therefore not recommended.

Preparation of Apparatus

Place correct screens in units and see that hinges and bolts work properly and screens are central. Open water shut-off cock, open vents on all units, pinch hose leading from first unit, start motor and stop it when up to speed. Restart motor, and as soon as water is expelled from vent, close vent and release hose. The unit will now run to waste (the three-way cock being left at "drain") and the level should remain steady. If not, adjust the two-way drain cock until the tray level is steady. Watch the level for some minutes; if overflowing occurs air is being drawn in the vortex. Adjust the deflector and repeat until the unit runs steadily. Now turn the discharge into the second unit and repeat the process. Never allow the inlet to be submerged as this will alter the head. When all units are running correctly, time the discharge using the sampler after the last unit and check with a pailful of water and a stop-watch. The rate of flow should be 20 liters per minute within 0.2 per cent.

Introduction of Sample

The sample should be introduced uniformly over a period of two minutes.

The sample may be conveniently placed in a 2000-cc. graduated cylinder which can be manipulated in one hand, leaving the other free to control the water shut-off valve or the hose from the first unit.

The sample should be poured at such a rate that the level in the tray of the unit is constant, the shut-off valve being slightly throttled.

A pin is placed on one side of the shut-off cock to restrict the flow by 5 per cent, the other side being left free for closing off the flow. If with coarse stock matting occurs, allow the screen to free itself before proceeding to pour. Sometimes a lower screen may overflow; air has not been expelled. Stop pouring, control by pinching the hose feeding the unit above and resume pouring as soon as possible. The sample takes a minute or more to distribute itself in the various casings, after which the adhering fines are washed away from the retained fibers. Small variations in the rate of introduction of sample do not seriously affect the accuracy of the result, but in precision testing care should be taken that the sample is introduced as uniformly as possible.

Conduct of Screening Operation

The duration of the operation is reckoned from the commencement of the introduction of the sample until the master switch is opened. The standard time is seven and one-half minutes;

The stop-watch should be started when the operator begins to pour the sample into the tray. For control purposes an ordinary watch may be used but is less convenient. Watch the rate at which the effluent from one unit to another ceases to appear milky. Small samples may be withdrawn with a 50-cc. beaker and restored. At the end of five minutes no visible milkiness should be present in the effluent from any screen, but a few fibers will be seen in all effluents before the 200 mesh. At the end of the period open the master switch and at once turn all three-way cocks to drain. Shut the water shut-off cock. Open all vents.

Fractions on any screen mat so rapidly that no loss of fiber can be detected in draining down.

Small variations in the duration of a run are not important except in precision testing.

Influence of Time

In the tables which follow are set forth the results obtained with different kinds of pulp which have been subject to the action of the device for varying periods. In order to use a wide range of meshes the pulps used consisted of a fine groundwood, a mixture of the latter with some groundwood screenings and the latter alone. The time taken to introduce the sample was one-half minute in each case.

The very fine groundwood was selected intentionally to secure the effect of a high percentage of fines.

TABLE II

THE INFLUENCE OF TIME ON THE CLASSIFICATION OF A GROUNDWOOD PULP RICH IN FINES

(Four screens in use)

Exp. No.	Time of Run in Minutes	Per Cent Retention on 28 Mesh	48 Mesh	100 Mesh	200 Mesh	Past 200
3A	3½	1.1	1.4	12.8	19.1	65.6
3B	3½	0.7	1.3	12.7	19.4	65.9
4A	4½	0.8	1.2	11.8	18.4	67.8
4B	4½	0.8	1.1	12.0	18.3	67.8
5A	5½	0.8	0.9	11.1	18.3	68.9
5B	5½	0.9	0.9	11.0	18.1	69.1
7A	7½	0.6	0.7	10.6	17.4	70.7
7B	7½	0.5	0.8	10.3	18.0	70.3
10A	10½	0.7	0.6	9.5	17.2	72.0
10B	10½	0.5	0.6	8.9	17.4	72.6

The effect on white water is about 1 per cent of the sample per minute or about 1.5 per cent of the fraction present in the same period.

A commercial groundwood was next taken and screened as shown in Table III.

TABLE III

INFLUENCE OF TIME ON THE CLASSIFICATION OF A COMMERCIAL GROUNDWOOD PULP

(Five screens in use)

Expt. No.	Time min.	Per Cent Retained on 14 Mesh	28 Mesh	48 Mesh	100 Mesh	200 Mesh	Past 200
5A	5	1.9	20.0	12.6	18.7	13.2	33.6
5B	5	4.6	18.6	12.9	17.6	11.6	34.7
10A	10	0.5	15.0	14.4	19.6	14.1	36.4
10B	10	1.0	14.7	13.9	19.4	14.3	36.7

It was noticed that with five screens in use five minutes was not quite sufficient to ensure the transfer from screen to screen reaching a minimum.

It was thought advisable to study the effect of coarse pulps and screens before selecting a standard time for the operation.

Pure groundwood screenings were classified using a series of coarse screens overlapping the series previously used.

The results obtained are shown in Tables IV and V.

TABLE IV

INFLUENCE OF TIME ON THE CLASSIFICATION OF GROUNDWOOD SCREENINGS

(Five screens in use)

Expt. No.	Time min.	Per Cent Retained on 8 Mesh	14 Mesh	28 Mesh	48 Mesh	100 Mesh	Past 100
3.5	3½	5.1	8.5	23.2	11.0	19.7	32.5
7.5	7½	4.2	9.4	17.2	10.8	18.7	39.7
10.5	10½	2.0	7.9	20.8	10.5	19.5	39.8

(This pulp is not identical with that used in Table V.)

TABLE V

INFLUENCE OF TIME ON THE CLASSIFICATION OF GROUNDWOOD SCREENINGS USING COARSE SCREENS

Expt. No.	Time min.	Per Cent Retained on 4 Mesh	8 Mesh	14 Mesh	28 Mesh	48 Mesh	Past 48
5A	5	3.8	9.5	38.5	22.1	5.9	20.2
5B	5	4.2	14.1*	45.8*	12.1	5.1	18.7
10A	10	2.9	6.5	48.1*	13.3	8.6	20.6
10B	10	3.2	9.7	33.1	24.5	7.6	21.9
10C	10	2.5	11.0	32.1	24.6	7.5	22.3

* Matting occurred.

Standard Time of Screening

On examining the results contained in Tables II to V it appears that on the basis of a set of five screens 5 minutes is not adequate for good duplication of results, because the first two minutes are occupied by the introduction of the sample and the next three minutes are consumed in delivering the fractions to the respective screens. The last two-and-a-half minutes are devoted to rinsing the fibers free from adhering fines as shown by the appearance of the water flowing from screen to screen. On this account it was decided to adopt a standard time of 7½ minutes reckoned from the start of introduction of the sample, and to introduce the later uniformly over a period of two minutes.

Influence of pH

Variation of Hydrogen ion potential in ordinary water has no effect.

Unless the water used were acid or alkaline to an extent which would unfit it for paper-making purposes, it is improbable that it would influence screening. The action is mechanical, and the dilution due to passing 20 liters per minute past the pulp will wash it free from any absorbed electrolyte in a few seconds. Where a pulp mat is the screening medium, pH is of importance, but here, with individual fibers being sorted mechanically, no effect is to be anticipated.

Influence of Temperature

Variation of water temperature in summer and winter has no effect.

The limiting factor affecting rate of flow is the orifice effect of the fittings used, not the screens. Although the flow is non-sinuous, the variation in velocity due to viscosity changes induced by temperature variations from 2-25 deg. C. is negligible, hence the mechanical forces separating and transporting the pulp are practically unaffected.

COLLECTION OF FRACTIONS

As soon as the effluent from a screen ceases to flow the screen should be removed and the unit cleaned. The collected pulp should be set aside for estimation.

The wing-nuts should be backed off and the screen removed. The baffle should then be removed and the baffle and casing inlet tube rinsed into a shallow tray or cake tin. The pulp on the screen should then be rinsed and rubbed with the forefinger into a pail into which the tray has been dumped. A small jet should be used to rinse the screen and backwash it, rubbing the edges well with the finger or a soft tooth brush (do not use a stiff brush).

If screens are thoroughly cleaned they will not pick up pulp. Steam may be needed if a screen once becomes fouled.

Glue used to seat gaskets if not allowed to dry may foul a screen.

Cleaning of Apparatus

Screens, baffles and casings must be cleaned after each run and at the end of the day or tour a blank run should be made to rinse out the system.

Screens must never be put away dirty, nor the instrument left for more than a few minutes without cleaning.

Determination of Per Cent Retention

Estimation of Fractions

Samples should be filtered on cambric in a Buchner funnel or better a brass cylinder with removable top and a perforated plate, pressed if possible and dried to constant weight at 105° C, preferably in a current of air.

For control purposes ironing on a hot plate may be used. Pressing reduces the time required. Pats should be clearly marked in indelible pencil. Retention should be expressed in per cent of the original sample based on a consistency determination. Effluent passing 200 mesh will be determined by difference between the total retention and the original sample and similarly expressed. In rounding off adjustments will be made in the past 200-mesh fraction.

Subdivision of Fractions

Where retention on 14 mesh is high coarser screens may be used in a separate run and the retentions subtracted from the 14 mesh fraction.

The percentage composition of mixtures may be calculated from classification of their components and vice versa the relative proportions of each component may be inferred from tests of each and the mixture.

Part IV—Experiments with the Proposed Classifier

In order to give some idea of what can be expected with chemical pulps a few experiments were made with sulphite pulps of news grade, unbeaten. The results will be found in Table VI.

TABLE VI

COMPARISON OF BLOW-PIT NEWS SULPHITE WITH REGULATOR SULPHITE CONTAINING WHITE WATER FROM THE GROUNDWOOD MILL

Series	14 Mesh	28 Mesh	48 Mesh	100 Mesh	200 Mesh	Past 200
1A	1.3	70.2	6.5	6.5	3.1	12.4
2A	1.1	76.3*	4.4	6.5	3.7	8.1*
1B	0.1	55.5	5.2	8.1	6.7	24.4
2B	0.1	55.7	5.1	8.1	6.3	24.7

* Matting occurred due to hasty introduction of sample.

Series A comprises duplicate tests of the blow-pit stock, while series B covers the regulator stock. The decrease in 14 mesh is due to fine screens. The 28 mesh and 48 mesh retentions are proportional and free from mechanical pulp when examined under a microscope. The increase in the 100, 200 and Past 200 fractions is due to groundwood white-water (the sulphite white-water is not used here) and the composition and consistency of the white-water may be calculated if the regulator consistency is known.

Classification of Canadian Groundwood Pulps

Through the groundwood committee twelve mills were invited to participate and eleven accepted. (Each mill participating received the results of tests made on its own pulps as soon as tested.) The total number of separate pulps submitted was 116, covering the whole of Canada from New Brunswick to the Pacific Coast.

The following properties were determined on each pulp:—

Freeness (Canadian standard method).
Rate of drainage on British sheet machine.
Burst ratio per cent.
Tear ratio per cent.
Breaking length in meters.
Stretch ratio per cent.
Porosity in seconds on densometer.
Bulk.
Retention on 14, 28, 48, 100 and 200 mesh Tyler screen.
Material passing 200 mesh Tyler screen.

The following information was secured so far as possible for each pulp:—

TABLE VII

PROPERTIES OF HAND SHEETS MADE FROM FRACTIONS OF PULPS COMPARED WITH THE ENTIRE PULPS

Series A: Contains normal proportion of accepted stock from rescreens.
Series B: Accepted stock from fine screens.

Pulp	Screen Mesh	Per Cent Total Sample	Drainage Time	Porosity (Sec.)	Bulk	Tear Ratio %	Breaking Length Meters	Stretch Ratio %
A	None	100.0	15.6	29.1	2.25	52.0	2840	2.0
B	None	100.0	27.0	57.7	2.18	41.8	2840	1.7
A	14	0.5	No sheets made—insufficient material					
B	14	0.2	No sheets made—insufficient material					
A	28	80.0	3.4	0.0	3.45	45.9	1030	0.8
B	28	9.4	3.4	0.0	3.83	33.4	860	1.0
A	48	13.2	3.5	1.0	2.64	28.0	1460	1.0
B	48	12.6	3.7	0.3	3.56	27.7	1080	0.9
A	100	22.1	4.1	2.8	24.3	16.9	1730	1.0
B	100	21.9	4.2	1.3	2.89	16.8	1570	1.0
A	200	15.1	7.1	10.5	2.17	11.1	2175	1.1
B	200	15.9	7.2	8.7	2.29	11.0	2205	1.2
A	Past 200	31.1	No tests made owing to lack of time.					
B	Past 200	40.0	No tests made owing to lack of time.					

TABLE VIII.—PROJECT 63M. SCREEN CLASSIFICATION OF CANADIAN GROUNDWOODS.

Serial No.	Mill No.	Wood Composition, Per Cent: Spruce	Balsam	Jack Pine	Sp. Grav. O.D./G.V.	Sampled From	Freeness ccs.	Drainage Time	Burst Ratio Per Cent	Tear Ratio Per Cent	Breaking Length	Stretch Per Cent	Porosity Sec/100 cc.	Bulk cc/gm.	Percentage Retention on: 14 Mesh	28 Mesh	48 Mesh	100 Mesh	200 Mesh	Past 200 Mesh	Per Cent Retention on .010 Plate	H. P. Days: Unit	Ton Pulp
Av.	1	44	56	..	.336	Decker	40	41.5	36.2	43.4	4045	1.65	149.5	2.06	0.5	10.2	12.9	23.0	16.0	37.5	..	82.5	81.8
A.	2	86	7	7	.395	Mixed	101	20.1	24.3	46.4	2940	1.4	41.7	2.38	1.5	16.0	12.2	20.3	14.9	35.1	0.8	79	..
Av.	3	95	5	..	.413	Mixed	58	34.9	35.0	58.2	3865	1.6	74.6	2.17	0.6	20.3	11.5	18.5	13.5	35.6	..	98	78
A.	4	39	61	..	.366	Decker	75.6	21.6	27.8	46.6	3256	1.5	57.2	2.21	0.2	13.5	15.5	22.5	15.6	32.7	..	78	70
B.	4	39	61	..	.366	Grinder	203	12.5	23.8	51.8	2839	1.2	34.9	2.19	2.4	19.4	13.2	19.9	12.6	32.6	1.8	78	70
A.	5	20	80	..	.374	Regulator	55.7	30.5	28.2	49.6	3280	1.4	63.1	2.16	0.4	12.3	12.5	20.6	15.1	39.0	..	78.8	70
B.	5	60	40	..	.383	Regulator	64.4	24.7	28.1	49.4	3236	1.5	54.8	2.23	0.3	13.1	14.2	21.5	15.2	35.6	..	63.8	55.4
Av.	6	25	75	..	.320	Regulator	83.6	20.1	23.9	43.2	2816	1.3	42.3	2.36	0.3	12.7	15.2	21.4	15.9	34.5	..	76.6	79.6
A.	7	48	39	13 Fir	.398	Regulator	74.5	25.0	29.0	56.7	3270	1.5	50.2	2.22	1.5	18.0	12.7	21.0	12.7	34.1	..	75.5	..
B.	7	100	..	..	.385	Grinder	117	19.0	27.6	64.8	3023	1.5	42.9	2.23	4.0	17.2	14.2	21.7	12.1	30.8	1.6	75.5	..
Av.	8	70–75	30–25	..	.390	Decker	90.3	20.1	29.8	55.1	3350	1.6	47.4	2.28	0.8	21.4	11.9	19.0	13.4	33.5	..	90	77
Av.	9	100	..	..	.416	Decker	69	27.6	37.6	67.0	4000	1.8	74.8	2.24	1.8	23.7	11.7	18.8	12.5	31.5	..	120	95.7
A.	10	76	15.5	8.5	.404	Grinder	147	19.8	27.3	50.2	3140	1.6	45.1	2.38	3.1	16.9	12.9	20.6	14.4	32.1	1.8	86.5	71.3
B.	10	74.5	15.0	10.5	.412	Regulator	68.5	22.7	28.0	46.0	3225	1.5	48.7	2.32	0.3	15.1	13.3	21.6	15.2	34.5	..	86	70
A.	11	90	10	..	.443	Decker	84.6	19.9	26.0	47.6	3191	1.5	46.5	2.19	0.4	12.4	12.8	21.4	16.1	36.9	..	95.8	72.4
B.	11	100	..	..	.450	Decker	170	11.4	25.7	61.4	3013	1.6	21.5	2.35	2.1	22.9	13.0	19.0	13.6	29.4	..	95.8	71
C.	11	90	10	..	.443	Decker	49.4	24.9	25.7	38.2	2986	1.5	56.9	2.14	0.1	6.0	12.7	21.7	17.3	42.2	..	95.8	72.4
Av.	12	100	..	..	.416	Decker	68	25.2	34.1	51.6	3880	1.5	68.8	2.07	0.8	17.0	13.2	20.8	14.4	33.8	..	87.2	70

NOTE:— (1) Grinder samples screened on 0.010 inch cut screen plate before making hand sheets or freeness determination.
(2) Properties of pulps made under similar conditions at any one mill reported as average values.
(3) Density, wood consumption and energy consumption are representative of the average conditions obtaining in the mill concerned over the period shown.

Wood composition per cent.
Specific gravity (Oven-dry per green volume).
Horse-power-days per 100 c. f. solid wood ground.
Per cent artificial stones used.
Method of burring.
Screening procedure.
Character of wood.
Mill freeness.

The results have been summarized by mills in Table VIII, the properties of pulps ground under similar conditions being reported as averages.

REMARKS CONCERNING TABLE VIII

Av. 1.—100 per cent natural stones. Burr 10 × 1¾ inch mill freeness 44. Three pockets.
A. 2.—51 per cent artificial, 49 per cent natural mill freeness 96.
Av. 3.—19.3 per cent artificial, 80.7 per cent natural, mill freeness 66. Wood; 33 per cent sweep, 6.6 per cent settlers, 60.4 per cent pile.
A. 4.—30 per cent continuous electric, 70 per cent hydraulic pocket. Mill freeness 95.
B. 4.—30 per cent continuous electric, 70 per cent hydraulic pocket, mill freeness 151.
A. 5.—Natural, magazine hydraulic, burrs. 8 × 1½ inches. Mill freeness 64.3, 14 point diamond and brick accepted first screen.
B. 5.—Natural magazine hydraulic. Burr 8 × 1½ inches. Mill freeness 51.4, 14 point diamond and brick. Includes rescreen.
Av. 6.—Fine screen, thickened on American filters.
A. 7.—93 per cent natural, burr 10 × 1½ inches, 7 per cent artificial, burr. 12 × 3 inches.
B. 7.—3 natural stones burr 10 × 1½ inches. 1 Norton burr 12 × 3. 2 carborundum, burr 10 × 1½.
Av. 8.—Continuous mag. grinders, Norton stones, 46 grit, burr 12 × ¾ and 1 carborundum 50 grit burr 12 × ¾.
Av. 9.—100 per cent natural burr 9 × 2½ three pocket electric and hydraulic, river wood.
A. 10.—38 per cent natural, 62 per cent artificial.
B. 10.—50 per cent natural, 50 per cent artificial.
A. 11.—89 per cent natural, 11 per cent artificial, 100 per cent standard decker, plus rescreen.
B. 11.—100 per cent accepted stock from rescreens, mill freeness 195.
C. 11.—100 per cent fine screen, 89 per cent natural, 100 per cent Oliver Decker.
Av. 12.—100 per cent hard, fine Lombard and Empire, 50 per cent Decker, 50 per cent American filter, 4 pocket, 24 inch wood.

The Strength of Fractions of Groundwood Increases With Decreasing Fiber Length

Two pulps, one containing rescreened pulp, which differed markedly in screen analysis but not in strength were classified and sheets made from fractions, except past 200. The strength of fractions was in all cases inferior to that of the sheets made from the entire pulp. The lack of variation observed between the strengths of the entire pulps indicates that the composition of the mixture must possess a complex relationship with the strength of fractions which demands further study. Table VII shows the results obtained.

Discussion of Canadian Groundwood Pulps

Plotting the samples on a sample base failed to uncover any relation except a trend of tear-ratio with the retention on the 28 mesh. The only other relation found was that of "porosity" to strength, the strongest groundwood pulps showing high "porosities." (It should be explained that a high "porosity" number in seconds means a low true porosity and vice-versa.)

The lack of relation between the per cent retention on various screens was surprising, in view of the work at the Forest Products Laboratories at Madison, Wis., on beam testing, and was at first sight discouraging. On reflection, however, in the light of the information previously obtained and cited in the last report with respect to beaten chemical pulps, it became evident that there was a factor other than simple classification to be considered, that of fibrillation or "hydration."

For instance in Table VIII referring to the results obtained with samples from Mill No. 11, which fell into three categories, accepted stock from fine screens, accepted stock from rescreens and mixures of the two as furnished to the paper mill it will be noticed that the fine-screened stock is in general slower higher in "porosity," higher in rate of drainage and on the whole slightly lower in strength of pulp as evidenced by hand-sheets, when compared with either the rescreened stock or a mixture of the two. The chief difference detected by the classifier is a higher retention on the 28 mesh in the case of the rescreened stock, accompanied by a lowering of the material passing the 200 mesh. What is remarkable is that the strength contrary to a considerable volume of opinion, is actually higher than that of the fine-screened stock with more fines and less coarse material. The increased freeness and reduced "porosity" are intelligible; the increase in tear ratio is not unreasonable owing to the increase in long fiber.

The next point of interest is the presence of pulps from several different mills combining a percentage of coarse fiber above the average with strength values above the average and, curiously enough, remarkably high "porosities" without remarkably high values for freeness. Apparently it is possible to grind a pulp high in strength, of moderate freeness and containing a relatively high proportion of long fiber even from sweepwood. On the other hand, Mill No. 1 furnished two strong pulps, one remarkably so, having low freeness, high fines and great strength, the tear, however, being lower than in the case of the other mills referred to. The presence of considerable amounts of balsam fir, western hemlock and western fir does not prevent pulp of high strength being ground, but one mill, grinding 75 per cent balsam, shows figures below the average.

The inference is that the degree of fibrillation of different fractions differs according to the manner in which the stone has been treated although quite wide variations in both cut and lead of burr do not produce anything like corresponding variations in pulp properties. It appears to be of great interest to subject fractions of the more interesting pulps to intensive study, both as to their contribution to the sheet, the effect of varying their proportions in the sheet and the possibility of improving their contribution by beating or refining. In this connection the variation in horsepower consumption was noticed to be less than might have been expected. It is especially to be noted that at least one mill ground considerable balsam at a low power cost with a good quality of product. It may also be observed that the product of continuous grinders is apparently inferior to that obtained from either hydraulic magazine or pocket grinders. Another interesting feature is the remarkably good pulp secured from artificial stones as compared with sand stones, the quality being in many cases above average and admixtures up to and over 50 per cent having no injurious effect on the pulp.

It is proposed to study fractions of Canadian groundwood pulps from the museum samples on hand and ascertain their contributions to the properties of the sheet, which are expected to depend on the previous treatment of the groundwood or of the fraction and also upon the proportion of the fraction present. It is felt strongly that this work should not be studied statistically but avenues of approach which afford promise should be explored and if possible opened up, the trend of the investigation being based on the results so obtained. Later it may be desirable to carry out some grinding trials under selected conditions on the experimental grinder at the Pulp and Paper Division. In this connection F. L. Munro[11], developing the device for measuring consistency by light absorption described by J. S. Hart, O. Maass and H. Wyatt Johnston[12] has shown that the increase of surface due to beating can be measured and this method may cast light on the present problem.

[11] F. L. Munro, Thesis for Degree of Doctor of Philosophy, McGill University, 1932.
[12] J. S. Hart, O. Maass and H. Wyatt Johnston, Pulp and Paper Magazine of Canada. January 29, 1931, p. 130.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

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Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Fibro-Ligneous Blocks, Etc. Gaétano Rossi. Fr. pat. 724,886 (Oct. 20, 1931).—Wood chips obtained by planing below the bark of wooden piles is macerated in a solution of magnesium sulphate, drained and mixed with a calcifying material such as magnesia. The pulp obtained is placed in molds and heated to 150°C.—A.P.-C.

The Making of Fine Paper. L. M. Yoerg and M. V. Horan. Paper Mill 55, No. 24; 10, 12 (June 11, 1932).—A brief discussion of the manufacture of rag-fiber papers. —A.P.-C.

The Use of Latex in the Manufacture of Paper and Boards. A. Lambrette. Paperterie 54:885-886 (Aug. 25, 1932).—Various possible uses of rubber latex in different grades of paper and board are suggested.—A.P.-C.

Paper. I. G. Farbenindustrie A. G. Fr. pat. 725,069 (Oct. 26, 1931).—Clouding which is fast to water is produced in paper by passing a solution of a cellulose derivative in an organic solvent into a precipitation bath kept in agitation and incorporating the gelatinous filaments formed, preferably without previous drying, in the pulp which is converted into paper in the usual way.—A.P.-C.

Paper Manufacture. Julius Kantorowicz. Fr. pat. 726,724 (Sept. 19, 1931).—Products, such as papers, which can absorb water without becoming soft are obtained by mixing cellulose which has been rendered indifferent to the action of water with ordinary cellulose. —A.P.-C.

Resin-Impregnated Laminated Sheets. Roy H. Kienle and William J. Scheiber assignors to The Canadian General Electric Co., Ltd. Can. pat. 323,870 (July 5, 1932).—Aniline and formaldehyde are made to react in an acid medium at a temperature not exceeding 40°C. until condensation has taken place. Hydrated pulp is added and saturated with the condensation product. The mixture is neutralized with alkali to precipitate the condensation product on and around the fibers. The mixture is heated to 60°C., the stock is beaten and sheets are formed from the stock on a paper machine. Several sheets are superimposed, heated and compressed at 150°C. and 1000 lbs. per sq. in. or over.—A.P.-C.

Manufacture of Effect Papers and Apparatus Therefor. Berthold Cornely and Rudolf Richter assignors to I. G. Farbenindustrie A.G. U. S. pat. 1,880,827 (Oct. 4, 1932).—One or more feed pipes are mounted above the wire, near the slices, the distance above the wire being less than the height of the layer of stock at that point. Color solution is supplied through these pipes, and the latter are moved relatively to the pulp in a direction at an angle to the flow of the pulp.—A.P.-C.

Roll Wrapper. Paper Mill 55, No. 36:8, 17 (Sept. 3, 1932).—A brief description of the Jagenberg roll wrapping machine with a discussion of its merits.—A.P.-C.

Manufacture of Rovings, Yarns, Twines and the Like. John C. Sherman assignor to Brown Co. U. S. pat. 1,880,056 (Sept. 27, 1932).—An aqueous pulp suspension is deposited in the form of continuous felted strips on an endless wire passing around a cylinder mold. The strips are removed from the wire and rolled into self-sustaining strands while they are of practically the same texture as when removed from the wire.—A.P.-C.

Machine for the Manufacture of Asbestos-Cement Products. Maurice Catala and Albert Huart. U. S. pat. 1,876,399 (Sept. 6, 1932).—In order to reduce the wear on the felts used in making asbestos-cement products on machines of the type of paper machines, an endless rubber belt, travelling at the same speed as the felt, is interposed between the felt and the top of the suction boxes.—A.P.-C.

Process of Producing Felted Sheets Containing Bitumen. Gibson Yungblut assignor to The Richardson Co. U. S. pat. 1,877,377 (Sept. 13, 1932).—Paper is wetted, treated with hot bitumen, either by immersion or, preferably, by spraying, and is transferred directly to the beater. After beating it is sheeted on a paper machine.—A.P.-C.

Impregnating Fabrics Such as Felt with Bituminous Material. Harold P. Hayden assignor to Barber Asphalt Co. U. S. pat. 1,870,564 (Aug. 9, 1932).—A strip of roofing felt is passed into a bath of bituminous material such as liquid asphalt, is withdrawn and, before cooling, one surface of the strip is subjected to the action of a flame so regulated as to burn off protruding fibers. —A.P.-C.

Festooning Apparatus for Impregnated Roofing. Leland S. Rosener assignor to The Paraffine Companies, Inc. U. S. pat. 1,876,761 (Sept. 13, 1932).—The invention provides a simple and compact construction for a festooning apparatus for cooling asphalt-impregnated roofing felt, wherein the loops are formed on bars carried on a slowly moving conveyor and the bars are transferred to a second conveyor; after the looped material has been removed from the bars, the latter are transferred to a third conveyor which delivers them to the loop-forming conveyor. The loop-holding bars are at all times equally spaced and definitely positioned with respect to the rest of the mechanism.—A.P.-C.

Manufacture of Laminated Paper Product Suitable for Electric Insulation. Lawrence W. Case and Harold E. Cude assignors to Case Bros., Inc. U. S. pat. 1,880,339 (Oct. 4, 1932).—Several webs of strong paper, that have had one or both surfaces coated with adhesive, are fed from individual rolls about suitable bars and then upward to the nip of a pair of calendering rolls.

While the sheets are passing upward to the rolls, one or both surfaces are showered with a sufficient quantity of water to ensure the required hydration of the stock under the pressure of the calender. The amount of water absorbed is regulated by adjustable rolls or bars in contact with the surfaces of the upwardly moving sheets—A.P.-C.

Cigaret Paper. Anciens Etablissements Braunstein Frères. Fr. pat. 732,872 (March 9, 1932).—The combustibility of paper is improved by addition of stearin, as follows: the pH of the stock in the beater is brought to about 6 by addition of oxalic acid (to precipitate alkaline-earth salts), hot aqueous sodium stearate solution is added, and the stearic acid is precipitated by slow addition of oxalic acid to prevent flocculation of the stearic acid.—A.P.-C.

Manufacture of a Composite Reinforced Sheet. William R. Collings assignor to The Dow Chemical Co. U. S. pat. 1,877,270 (Sept. 13, 1932).—Two sheets of crepe paper are passed over rolls that will apply to one side only of each sheet an adhesive such as asphalt. The treated sheets are brought together, with the adhesive coated faces adjacent, simultaneous with the insertion of jute-yarn reinforcing between them, the yarn being diagonally applied in two layers crossing each other and both being at substantially the same angle from the respective edges of the sheet. At least one of the sheets is subjected to a softening process, as by blowing wet steam on the uncoated side, and the combined sheet is then passed through squeezing rolls to depress the softened paper through the openings between the reinforcing yarns into very intimate adhesive contact with the yarn and the sheet on the other side.—A.P.-C.

Paper. Ralph H. McKee. U. S. pat. 1,870,259, (Aug. 9, 1932).—A previous and non-water-resistant paper comprises a thin sheet of fibrous material, and less than 3% of a strengthening and binding material precipitated during the paper manufacture from a viscose solution having a low caustic soda and carbon disulphide content.—A.P.-C.

Heatproofing and Fireproofing Paper and Craftboard. Otto Herting assignor to Sani Paper Products Co. assignor to Purity Fibre Products Corp. Can. pat. 325,562 (Aug. 30, 1932).—Craftboard or paper is saturated with a solution containing 8 oz. aluminum sulphate, 0.5 oz. titanium sulphate and 1 gal. water heated to 140° to 180°F. The craftboard or paper is removed and partially dried and then dipped in a solution containing 10 lb. sodium sulphate, 5 lb. sodium orthoborate, 14 gal. of 39° Bé. sodium silicate solution and 28 gal. of water heated to 140° to 180°F. The craftboard or paper is partially dried and pressed in desired shape.—A.P.-C.

Parchment Paper for Lamp Shades. The Mantle Lamp Co. of America. Fr. pat. 731,721 (Feb. 23, 1932).—Parchment paper which can stand high temperatures with losing its translucency (*e.g.*, suitable for shades of petroleum-heated mantle lamps) is obtained by impregnating paper made from super-alpha fiber with a liquid glyptal-type resin diluted with a suitable plastifier (*e.g.*, tricresyl phosphate and heated for 6 hours at 130° to effect complete polymerization of the resin.—A.P.-C.

Paper Making from a Hygienic Point of View. J. Strachan. Paper Maker & Brit. Paper Trade J. International No.: 17-18 (1932).—An address discussing the properties required of papers used for wrapping various types of foodstuffs.—A.P.-C.

Production of Genuine Watermark Papers Using Relief Molds. National Bank of Hungary, and F. von Heinrich. Brit. pat. 375,905 (Oct. 12, 1931).—The surface on which the paper is formed by extraction of water from the stock is rendered differently permeable to water in certain places, corresponding with the design to be produced, by the application of materials insoluble in water, or by photographic or galvanic methods.—A.P.-C.

Possibilities for the Combination of the Fourdrinier and Cylinder Paper and Board Machines. O. Jung. Wochbl. Papierfabr. 63, No. 23:440-44; No. 24:461-465; No. 37:693-95; No. 39:725-27 (June 4, 11, Sept. 10, 24, 1932). The author discusses 22 possible combinations of fourdrinier and cylinder machines, giving the advantages and disadvantages of each combination. The first group concerns possible combinations of fourdrinier machines, using two or three machines together, and according to the direction of the wire on the machine. The second group concerns combinations of one or two fourdrinier machines with single mold cylinder machines; the third group is combinations of multiple mold cylinder machines and fourdrinier machines. The last group concerns the position and method of bringing the two sheets together; for example, before the couch or after the couch. Each possible combination is accompanied by a sketch showing exactly how the paper or stock travels.—J.F.O.

Coloring the Stock on its Way to the Paper Machine. Wochbl. Papierfabr. 63, No. 39:728 (Sept. 24, 1932). By means of several drawings, the author describes a system for coloring the stock on its way to the paper machine.—J.F.O.

Shower Pipe for Paper Machines. Seth Wheeler, Jr. U. S. pat. 1,857,829 (May 10, 1932).—In order to avoid the excessive wear resulting from the present practice of constructing shower pipes of soft material with an integral lip, the pipe and lip are made separate, each of hard, preferably non-corrosive, material. The lip portion is formed so that, when the holes of the shower pipe have worn to an excessive size, a new set of holes may be drilled and the lip may be adjusted to co-operate with the new holes and cover up the old ones.—A.P.-C.

Method of Preventing Post-Winding Welts in Paper Rolls. James A. Cameron and Robert Mc.Johnstone assignors to Cameron Machine Co. U. S. pat. 1,867,550 (July 19, 1932).—The web, while advancing under tension, is subjected to a lateral spreading action, in opposition to the longitudinal tension exerted by the winding means, of such amplitude as to bring the paper substantially to the natural width it would assume if free from tension, and the web is wound while the paper retains substantially its natural width.—A.P.-C.

Roll-Ejecting Mechanism for Paper Winders. Earl E. Berry assignor to Beloit Iron Works. U. S. pats. 1,870,224 and 1,870,225 (Aug. 9, 1932).—*1,870,224*—The device comprises a number of large curve-shaped arms pivotally mounted at their lower ends upon a shaft parallel to the winding shaft and located under the floor supporting the winder, the arms extending through a suitable opening in the floor. The upper ends of the arms are joined by an I-beam, and are each provided with cradles for receiving the finished roll. The latter is pushed on to the cradles by suitable mechanical means, and the arms are then lowered until the cradles are flush with the floor, when the roll of paper rolls off. *1,870,225*—This invention provides a different mechanism based on a similar principle to the preceding one. A roll-receiving cradle is mounted on a shaft parallel and close to the winder. The roll of paper is pushed off the winder on to the cradle by means of an ejector roll extending the full length of the winder; and the cradle is lowered by the operation of arms, the lower ends of which are provided with rolls which operate a cam rigidly mounted on the cradle-carrying shaft.—A.P.-C.

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WEEK ENDING APRIL 22, 1933

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MISCELLANEOUS

H. Reeve Angel & Co., Inc., Kurama Maru, Yokohama, 9 cs.; Japan Paper Co., G. Maersk, Kobe, 27 cs.; Houbigant Inc., Champlain, Havre, 3 cs.; Van Oppen & Co., Exochorda, Marseilles, 13 cs.; C. Schleicher & Schull Co., Pr. Roosevelt, Hamburg, 10 cs.; R. W. Greeff & Co., Pr. Roosevelt, Hamburg, 2 cs.; F. C. Strype, A. Ballin, Hamburg, 2 bls.; Wedeman Godknecht & Lally, A. Ballin, Hamburg, 23 cs.

RAGS, BAGGINGS, ETC.

F. Stern, Stuttgart, Bremen, 44 bls. rags; J. Cohen & Son Co., Black Falcon, Rotterdam, 12 bls. rags; E. J. Keller Co. Inc., Sarcoxie, ——, 77 bls. rags; E. J. Keller Co. Inc., Motomar, ——, 72 bls. rags.

OLD ROPE

——, Georgic, Liverpool, 85 coils; S. Birkenstein & Sons, Ingria, Barcelona, 38 bls.; W. Steck & Co., Black

Falcon, Rotterdam, 142 coils; ——, Amer. Merchant, London, 59 coils; Banco Coml. Italiane Trust Co., Habana, Bilbao, 105 coils; Banco Coml. Italiane Trust Co., Habana, Coruna, 18 coils; Banco Coml. Italiane Trust Co., Pr. Roosevelt, Hamburg, 57 coils.

GLUE STOCK, ETC.

——, Stuttgart, Bremen, 200 bags hide glue; ——, A. Ballin, Hamburg, 100 bags hide glue.

WOOD PULP

Gottesman & Co., Inc., Heddernheim, Iggesund, 1500 bls. sulphite, 300 tons; ——, Scanmail, Hango, 532 bls. sulphate, 92 tons; ——, Scanmail, Hango, 1061 bls. sulphite, 180 tons; Lagerloef Trading Co., Scanmail, Hango, 127 bls. mechanical pulp, 25 tons; Castle & Overton, Inc., Scanmail, Hango, 1170 bls. sulphite, 265 tons; Halifax Power & Pulp Co., Ltd., Dago, Sheet Harbor, 9810 bls. mechanical pulp, 2194 tons; J. Anderson & Co., Tonsbergfjord, Greaker, 3000 bls. sulphite; Atterbury Bros. Inc., Tonsbergfjord, Drammen, 800 bls. sulphite; Gottesman & Co., Inc., Tonsbergfjord, Drammen, 3750 bls. sulphite; Chemical Bank & Trust Co., Tonsbergfjord, Oslo, 625 bls. sulphite, Lagerloef Trading Co., Scanpenn, Helsingfors, 172 bls. sulphate, 28 tons; 1619 bls. sulphite 258 tons; 827 bls. sulphite, 139 tons; 889 bls. mechanical pulp, 177 tons; Castle & Overton, Inc., A. Ballin, Hamburg, 1160 bls. wood pulp, 232 tons.

WOOD PULP BOARDS

Lagerloef Trading Co., Scanmail, Hango 48 bls. Lagerloef Trading Co., Scanpenn, Helsingfors, 7 bls.

ALBANY IMPORTS

WEEK ENDING APRIL 22, 1933

Perkins, Goodwin & Co., Heddernheim, Sundsvall, 5790 bls. sulphite; Pagel Horton & Co., Inc., Heddernheim, Gefle, 4065 bls. sulphite.

PORTLAND IMPORTS

WEEK ENDING APRIL 22, 1933

Gottesman & Co., Inc., Heddernheim, Sundsvall, 12000 bls. sulphate; Perkins, Goodwin & Co., Heddernheim, Sundsvall, 1308 bls. sulphite; Gottesman & Co., Inc., Heddernheim, Iggesund, 5375 bls. sulphite, 1075 tons; 1000 bls. sulphate, 200 tons; Pagel Horton & Co., Inc., Heddernheim, Gefle, 2625 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING APRIL 22, 1933

F. S. Webster & Co., Georgic, Liverpool, 12 cs. tissue paper; E. J. Keller Co. Inc., Exochorda —— 91 coils old rope; E. J. Keller Co. Inc., Quaker City —— 334 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING APRIL 22, 1933

Chase National Bank, Handicap Kobe, 20 bls rags; Union Waste Co., Handicap Kobe, 50 bls. rags; Castle & Overton, Inc., Liberty St. Naizaire, 57 bls. rags; —— Scanmail Hango, 785 bls. sulphate, 157 tons; —— Scanmail Hango, 2700 bls. sulphite, 515 tons; —— Scanmail Hango, 114 rolls news print; Lagerloef Trading Co., Scanmail Hango, 744 rolls wood pulp boards 83 tons; Castle & Overton, Inc., Ingria Barcelona, 97 bls. rags; Union Waste Co., G. Maersk Kobe, 25 bls. rags; Lagerloef Trading Co., Scanpen Helsingfors, 2554 bls. sulphite, 484 tons; Lagerloef Trading Co., Scanpen Helsingfors, 254 bls. mechanical pulp, 50 tons; —— Scanpen Helsingfors, 75 rolls news print; Paper Manufacturers Co., Scanpen Helsingfors, 63 rolls news print; —— Sarcoxie Havre, 199 bls. rags; E. J. Keller Co. Inc., Quaker City —— 404 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING APRIL 22, 1933

Congoleum Nairn Co., Liberty St. Nazaire, 253 bls. rags; Congoleum Nairn Co., Liberty Bordeaux, 390 bls. rags.

NORFOLK IMPORTS

WEEK ENDING APRIL 22, 1933

Manufacturers Trust Co., G. Maersk Shanghai, 209 bls. bagging; Chase National Bank, G. Maersk Kobe, 390 bls. bagging; E. J. Keller Co. Inc., Black Hawk —— 90 bls. bagging.

SAVANNAH IMPORTS

WEEK ENDING APRIL 22, 1933

E. J. Keller Co. Inc., Handicap Kobe, 200 bls. bagging; 1st. National Bank of Boston, G. Maersk Shanghai, 500 bls. cotton tares.

NEW ORLEANS IMPORTS

WEEK ENDING APRIL 22, 1933

Parsons & Whittemore, Inc., West Queetchee —— 250 bls. sulphite.

Argentine Wood Pulp Market

MONTREAL, Apr. 3, 1933—The growth of the paper manufacturing industry of Argentina is reflected by the increased demand for wood pulp, writes H. A. Scott, Canadian Trade Commissioner in Buenos Aires. Imports rose from 12,300 metric tons in 1921 to a total of 30,695 tons in 1929. In 1930 and 1931 imports fell off, and under present conditions the requirements of this market are estimated at around 24,000 tons per annum. Imports for the first six months of 1932 amounted to 12,560 tons. Imported woodpulp is in demand in order of importance as follows: strong sulphite, bleached sulphite, soda kraft, easy-bleaching sulphite, and mechanical. Strong sulphite is, however, imported on a far greater scale than bleached sulphite.

In recent years the importation of soda kraft pulp has increased substantially owing to the high duties on wrapping paper, which have materially assisted the development of the local industry. A few hundred tons per annum of both aspen pulp and brown mechanical pulp are also imported. Germany has been by far the largest source of supply to the Argentine market. Canadian statistics record small shipments to this market in recent years of sulphite bleached and unbleached pulp, but, broadly speaking, Canadian prices have not been competitive.

Carthage Papermakers, Inc. Busy

CARTHAGE, N. Y., April 24, 1933.—Operations are being carried on steadily by the newly organized Carthage Papermakers Inc. with orders reported booked ahead. The company is furnishing employment to about 35 former employees of the defunct Carthage Pulp and Board Company which suspended activities some time ago and a further enlargement of the force may be necessary in the near future.

William J. Cassidy and Bert Thomas, president and treasurer respectively of the concern, left this week on a business trip to New York City where they plan to visit those interests which have been purchasing a large portion of the output of the local plant. They will also confer with officials of companies which have been supplying raw materials to the new concern. The executives of the local company are expected to return within several days.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, April 26, 1933.

Despite the uncertainty created by the monetary crisis, confidence is expressed by many leaders in the paper industry in the President's program of prosperity restoration. Numerous inquiries for future account are around but most manufacturers are reluctant to make future commitments and have withdrawn prices. Sales forces are generally optimistic.

There have been no further developments in the news print paper situation since the International announced a temporary price reduction. The total North American production was 236,503 tons during March. Stocks at the mills amounted to 73,877 tons at the end of March, according to information gathered by the News Print Service Bureau.

Steadiness prevails in the paper board market. Demand for box board is fairly persistent. Prices are holding up well. The fine paper market is exhibiting a strong undertone. Tissues are moving in normal volume. Some improvement is noticed in the coarse paper market and kraft wrapping paper prices are inclined to be firmer.

Mechanical Pulp

The ground wood pulp market continues quiet. Production at home and abroad is practically keyed to consumption. Offerings are not excessive and the industry is considered in a sound statistical position. There are some inquiries around which may materialize into good orders. Prices are generally holding to schedule, without difficulty.

Chemical Pulp

Trading in the chemical pulp market is light at present, due mainly to conditions caused by the prevailing inflation problem. Some of the foreign and domestic pulp mills have withdrawn quotations temporarily awaiting the hoped for stabilization of international currencies. At the time of writing, no price changes have been announced.

Old Rope and Bagging

The old rope market is listless but fairly steady. Paper mill demand for both domestic and imported old manila rope is only moderately active. Small mixed rope is rather quiet. Old rope prices remain unchanged. The bagging market is irregular. Gunny and scrap bagging are arousing little interest. Roofing bagging, however, is in seasonal request.

Rags

Paper mill demand for the various grades of domestic rags is restricted. Cotton rags are quiet, with the exception of No. 1 white shirt cuttings, which continue firm, influenced to some extent by a persistent demand from abroad. Roofing grades are moving in fairly heavy volume. The imported rag market is still affected by fluctuations in foreign exchange.

Waste Paper

The outlook for the paper stock market is considered promising. In the better grades, both hard and soft white shavings are holding up well. Book stock continues steady. More interest is being observed in old kraft machine compressed bales, which are firmer. Board mill demand for the lower grades of waste paper has fallen off temporarily.

Twine

Conditions in the local twine market are fairly satisfactory. Most of the business transacted during the past week was along routine lines. However, the prevailing demand for the various grades is well up to the usual average following the Easter holidays. Prices are generally holding to formerly quoted levels.

ACTION IN NEWS PRINT CRISIS

(Continued from page 11)

803,034. The Lake St. John Company has operating profits of $388,739, against $569,963 in 1931. After charges, etc., there is carried forward a deficit of $404,737.

Ernest Rossiter, the president, in his report, comments on the passing of the interest on bonds and debentures during the year, and procedes:

"During the year the news print production of the constituent companies decreased approximately 40,000 tons. Pulp sales also decreased very materially in tonnage, and while the consumption of other products fell off during the year, your companies were able to actually increase their sales of tonnage, over the previous year. Unfortunately, the drop in price has been progressive and steep, in spite of the constant efforts which the directors and the management have exerted to maintain price levels. The inventories show a very material write-off.

"Substantial economies have been put into effect in the woods and mill operations, as well as at administrative headquarters.

"Since our last annual statement business conditions have become increasingly difficult. The directors have endeavored to meet the constantly changing situation. So far, the outlook for 1933 is not good, and while it is difficult to forecast conditions, no increase in consumption of your companies' products can be foreseen at the moment, and although conditions may improve slowly a further lowering of prices in the meantime is quite possible.

"The obvious course is to further decrease costs of production by increased efficiency and strictest economy. Mills have been well maintained, and your directors feel that the enterprise is in excellent position for economic production and in a position to take full advantage of any market improvement."

Takes Over Atlantic Paper Tube Corp.

The Beisler-Weidmann Company, of Belleville, N. J., has taken over the business of the Atlantic Paper Tube Corporation at Delanco, N. J., which was formerly owned by William G. Shortess.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, April 26, 1933.

BLANC FIXE.—No radical changes were reported in the blanc fixe market. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is exhibiting a stronger undertone than of late. Contract shipments are going forward regularly. Prices continue steady. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is much firmer. Domestic standard ground is quoted at 8 to 9 cents and finely ground at 8½ to 9½ cents per pound. Argentine standard ground is selling at 9 cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is fairly persistent. The contract movement is seasonal. Solid caustic soda is quoted at from $2.25 to $2.60; while the flake and the ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is moderately active. Contract shipments are moving regularly. Imported china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Conditions in the chlorine market are fairly satisfactory. The contract movement is normal. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly firmer. The grades of gum rosin used in the paper mills are quoted at from $3.80 to $4.00 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.90 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Steadiness prevails in the salt cake market. Prices remain unchanged. Salt cake is quoted at from $12.50 to $13.00; chrome salt cake at from $11.50 to $12.50 per ton, at works. Imported salt cake is selling at from $12.50 to $13.00 per ton, on dock.

SODA ASH.—Paper mill demand for soda ash is improving. The contract movement is well maintained. Prices are unaltered. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.30; and in barrels, $1.43.

STARCH.—The position of the starch market is improving. Demand is fairly persistent. Prices are firmer. Special paper making starch is still quoted at $2.49 per 100 pounds, in bags; and at $2.76 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Business in the sulphate of alumina market is marking time. Prices are steady and unchanged. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market was along routine lines. Prices remain unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $18 to $22 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	4.75	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	4.00	@ 5.00
Book, Cased—		
S. & S. C.	4.25	@ 5.00
M. F.	3.75	@ 4.25
Coated and Enamel	5.00	@ 9.00
Lithograph	5.00	@ 9.00
Tissues—Per Ream—		
White No. 1	.50	@ .70
White No. 2	.45	@ .60
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —

(Delivered New York)

News, per ton—		
Roll, contract	40.00	@ —
Rolls, spot	40.00	@ —
Sheets	45.00	@ —
Side Runs	25.00	@ —
Kraft—		
No. 1 Domestic	4.50	@ 4.75
No. 2 Domestic	2.75	@ 3.00
Southern	2.62½	@ 3.00
Imported	2.75	@ 3.50
Boards—per ton—		
News	32.50	@35.00
Straw	29.50	@31.50
Chip	30.00	@32.50
Binders' Boards	62.00	@70.00
Kraft Liner	40.00	@45.00
Standard 85 Test Jute Liner	27.75	@30.00
Sgl. Mla. Ll. Chip	37.50	@40.00

(F. o. b. Mill)

Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—		
Moist	18.50	@20.00
Dry	19.00	@21.00

(F. o. b Mill)

No. 1 Domestic and Canadian	14.00	@22.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	1.80	@ 2.25
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.40	@ 1.60
Mitscherlich unbleached	1.60	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.25	@ 1.40
No. 2 Kraft	1.10	@ 1.15
Sulphate—		
Bleached	1.85	@ 2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—		
Bleached	1.75	@ 3.75
Easy Bleaching	1.60	@ 1.75
News	1.40	@ 1.65
Mitscherlich unbleached	2.00	@ 2.25
Kraft (Domestic)	1.25	@ 2.75

(Delivered Paper Mills)

Soda Bleached	2.00	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	3.80	@ 4.00
New White, No. 2	3.00	@ 3.25
Silesias No. 1	3.25	@ 4.00
New Unbleached	5.25	@ 5.75
New Soft Blacks	2.75	@ 3.00
Blue Overall	3.00	@ 3.50
Fancy	1.25	@ 1.50
Washables	1.00	@ 1.25
Mixed Khaki Cuttings	2.50	@ 3.00
Pink Corset Cuttings	2.75	@ 3.25
O. D. Khaki Cuttings	3.00	@ 3.25
Men's Corduroy	1.00	@ 1.25
New Mixed Blacks	2.25	@ 2.50

Old Rags

White, No. 1—		
Repacked	3.00	@ 3.50
Miscellaneous	2.00	@ 2.25
White, No. 2—		
Repacked	1.75	@ 2.00
Miscellaneous	1.50	@ 1.75
Thirds and Blues—		
Repacked	1.50	@ 1.75
Miscellaneous	1.00	@ 1.25
Black Stockings	2.00	@ 2.25
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.30	@ 1.40
New Mixed Cuttings	1.50	@ 1.60
New Light Silesias	3.00	@ 3.25
Light Flannelettes	2.50	@ 2.75
Unbleached Cuttings	4.50	@ 5.00
New White Cuttings	4.00	@ 4.25
New Light Oxfords	3.00	@ 3.25
New Light Prints	1.85	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	3.50	@ 3.75
No. 2 White Cotton	2.75	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.80	@ 2.00
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	1.80	@ 1.90
German Blue Linens	1.70	@ 1.80
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.50	@ .55
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	.90	@ 1.00
Domestic	1.00	@ 1.10
Wool Tares, light	.70	@ .80
Wool Tares, heavy	.70	@ .80
Bright Bagging	.70	@ .75
Small Mixed Rope	.59	@ .60
Manila Rope—		
Foreign	1.35	@ 1.40
Domestic	1.40	@ 1.50
New Burlap Cut	1.00	@ 1.50
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
White Envelope Cuttings	2.00	@ 2.10
Ordinary Hard White No. 1	1.70	@ 1.80
Hard White No. 2	1.50	@ 1.60
Soft White No. 1	1.45	@ 1.55
Flat Stock—		
Stitchless	.65	@ .70
Overissue Mag	.65	@ .70
Solid Flat Book	.55	@ .65
Crumpled No. 1	.45	@ .50
Solid Book Ledger	1.50	@ 1.75
Ledger Stock	.45	@ .55
New B. B. Chips	.20	@ .25
Manilas—		
New Env. Cut	1.35	@ 1.45
New Cuttings	1.00	@ 1.05
Extra No. 1 old	.80	@ .90
Print	.35	@ .40
Bogus Wrapper	.30	@ .35
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	.65	@ .75
News—		
No. 1 White News	1.00	@ 1.05
Strictly Overissue	.50	@ .55
Strictly Folded	.43	@ .48
No. 1 Mixed Paper	.25	@ .30

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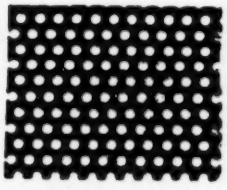

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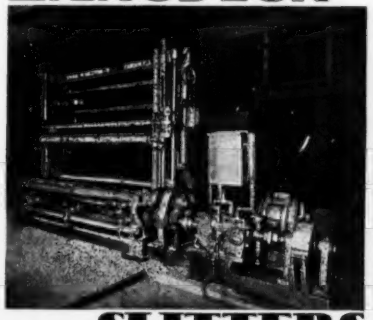

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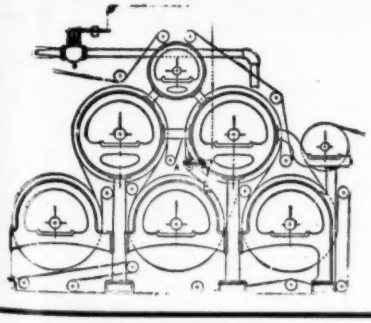

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Flaxined Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.08¼	@	.10¾
Fine Tube Rope—			
4-ply	.12½	@	.12¾
3-ply	.13¼	@	.13¾
2-ply	.14¼	@	.14¾
Paper Makers Twine Balls	.09½	@	.11¼
Box Twine, 2-3 ply	.11¼	@	.12¾
Jute Rope	.09	@	.10
White Hemp	.12¼	@	.15¾
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¾	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¾	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03½
Manila Tissue	.07	@	.07½
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	—
Solid News	30.00	@	—
Manila Lined Chip	37.50	@	—
Patent coated	47.50	@	—
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.55	@	.60
Solid Books	.45	@	.50
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.40
Overissue News	.45	@	.50
Old Newspapers—			
No. 1	.45	@	.50
Mixed Papers—			
No. 1	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	46.00	@	—
Straw Board	32.00	@	—
News Board	30.00	@	—
Chip Board	30.00	@	—
Wood Pulp Board	70.00	@	80.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.60	@	1.70
No. 2 Hard White	1.50	@	1.60
No. 1 Soft White	1.40	@	1.45
No. 2 Soft White	1.10	@	1.15
No. 1 Mixed	.50	@	.60
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.20	@	1.25
Writing Paper	.65	@	.70
No. 1 Books, heavy	.55	@	.60
No. 2 Books, light	.40	@	.45
No. 1 New Manila	1.10	@	1.15
No. 1 Old Manila	.60	@	.65
Print Manila	.40	@	.45
Container Manila	.40	@	.45
Old Kraft	.80	@	.85
Common Paper	.22½	@	.25
No. 1 Mixed Paper	.20	@	.30
Straw Board, Chip	.20	@	.30
Binders Board Chip	.20	@	.30
Corrugated Board	.35	@	.40
Overissue News	.50	@	.60
Old Newspaper	.40	@	.45

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05¾	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	—	@	.04¾
No. 2 Kraft	.02¾	@	—
(F. o. b. Boston)			
Southern Kraft	.02¾	@	—
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	44.50	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@40.00	
Filled News Board	32.50	@	—
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@30.00	
Single Manila Lined Chip	—	@37.50	
Single White, Patent Coated News Board—			
Bender	45.00	@55.00	
Wood Pulp Board	70.00	@75.00	
Binder Boards	62.00	@75.00	

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	1.25	@	1.40
No. 1 Old Manila	.50	@	.60
No. 1 Mixed	.60	@	.70
No. 2 Mixed	.40	@	.50
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.50	@	.60
White Blank News	.85	@	.90
No. 1 Kraft	.80	@	.85
Manila	.80	@	.90
No. 1 Mixed Papers	.20	@	.22½
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.32½	@	.37½
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.25	@	.30
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.00	@	—
Domestic	—	@	.60
Manila Rope—			
Foreign	—	@	1.40
Domestic	—	@	1.60
Transmission Rope	—	@	.90
Mixed Strings	.25	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.50	@	.62½
No. 1 Scrap Burlap	.65	@	.75
Scrap Sisal	.80	@	—
Scrap Sisal for shredding	—	@	.90
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	1.75	@	2.00
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.30	@	.35
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.75	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	—	@	.03½
New White No. 2	.02¾	@	.03¾
Silesias No. 1	—	@	.02
New Black Silesias	.02½	@	.02¾
New Unbleached	—	@	.04½
Fancy	—	@	.02½
Washable	—	@	.01½
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	1.50	@	1.75
White No. 2—			
Repacked	.02¾	@	.02½
Miscellaneous	.02	@	.02¾
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.40	@	.45
No. 2	.35	@	.40
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.09¾	@	—
No. 2 Sulphite	.08	@	—
No. 1 Colored	.10¼	@	—
No. 2 Colored	.08½	@	.10¾
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	6.65	@	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.00	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—
News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@20.00	
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@58.00	
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Fancy Shirt Cuttings	.02¼	@	.02½
Kraft	1.25	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.04¼	@	.04¾

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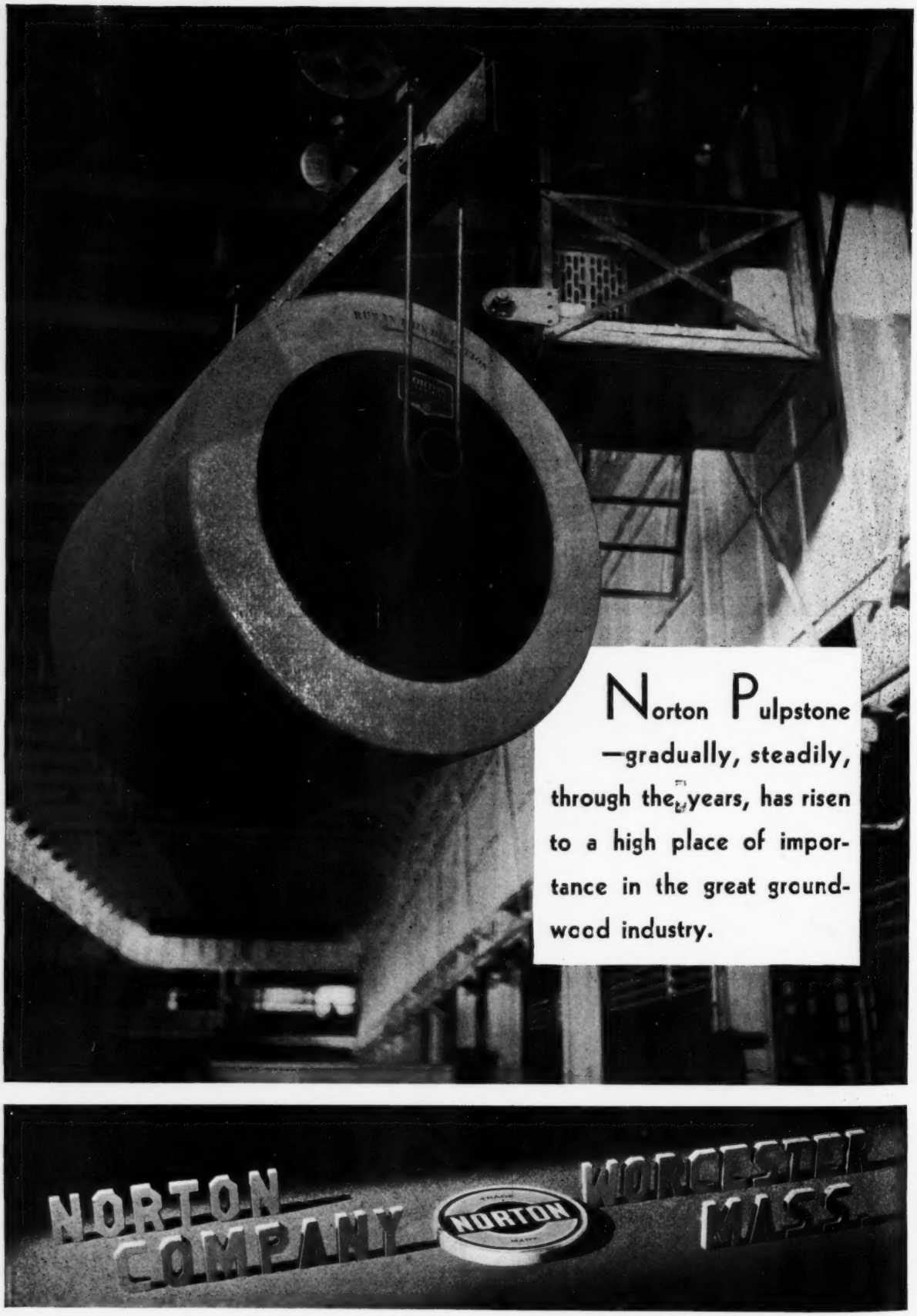
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